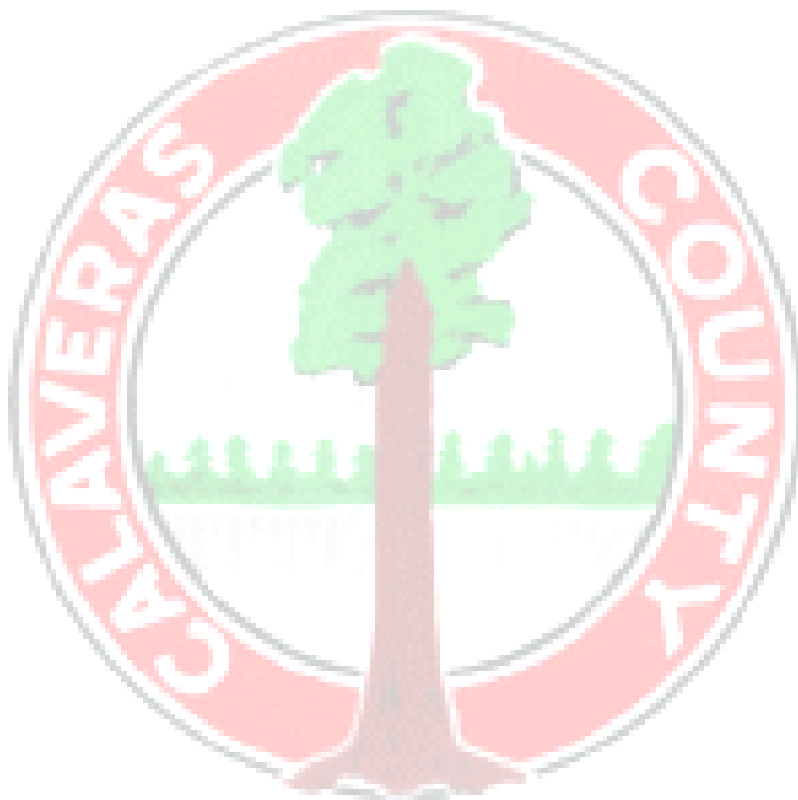


Calaveras County
Local Agency Management Program
(LAMP)



April 20, 2016

CALAVERAS COUNTY LOCAL AGENCY MANAGEMENT PLAN

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Completeness Checklist for LAMPs

GENERAL REQUIREMENTS FOR LAMPs				
OWTS Policy Section	OWTS Policy Section Summary	Region 5 Comments (These do not replace your review of the OWTS Policy. Italics and websites are specific explanations, more detailed than in the Policy.)	Relevant LAMP Section	Legal Authority/ Code Section
3.3	Annual Reporting	For Section 3.3 et seq., describe your program for annual reporting to Central Valley Regional Water Quality Control Board (Central Valley Water Board) staff in a tabular spreadsheet format.	Annual Reports	Ord. 13.12.200
3.3.1	Complaints	Include numbers and locations of complaints, related investigations, and means of resolution.	Complaint Process Title13 Enforcement	CHSC - 5411 Ord.13.12.170 & 180
3.3.2	OWTS Cleaning	Include applications and registrations issued as part of the local cleaning registration pursuant to California Health and Safety Code §117400 et seq.	Septage Recycling	CHSC - 117400
3.3.3	Permits for New and Replacement OWTS	Include numbers and locations of permits for new and replacement OWTS, and their Tiers.	Annual Reports Title13 Permits	Ord.13.12.060-085 Ord.13.12.160-165
3.4	Permanent Records	Describe your program for permanently retaining records, and means of making them available to Central Valley Water Board staff within 10 working days of a written request.	Permanent Records	Ord. 13.12.210
3.5	Notifications to Municipal Water Suppliers	Describe your program for notifying public well and water intake owners, and the California Department of Public Health. Notification shall be as soon as practicable, but no later than 72 hours upon discovery of a failing OWTS, as described in Sections 11.1 and 11.2, within setbacks described in Sections 7.5.6 through 7.5.10.	Complaint Process	R&R. Vol I. Chp.2.B.4
9.0	Minimum OWTS Standards	This Section is an introduction; we require no specific LAMP Section citation here.	N/A	N/A
9.1	Considerations for LAMPs	For Section 9.1 et seq., provide your commitment to evaluate complaints, variances, failures, and inspections in Section 9.3.2 (Water Quality Assessment); and your proposed means of assessment to achieve this Policy's purpose of protecting water quality and human health.	WATER QUALITY ASSESSMENT	Throughout Title 13 and R&R
9.1.1	Degree of vulnerability due to local hydrogeology	<i>Describe your commitment, and proposed means to identify hydrogeologically vulnerable areas for Section 9.3.2, after compiling monitoring data. Discuss appropriate related siting restrictions and design criteria to protect water quality and public health. Qualified professionals ("Definitions," page 9 in the Policy) should identify hydrogeologically vulnerable areas. Such professionals, where appropriate during a Water Quality Assessment, should generally consider locally reasonable percolation rates of least permeable relevant soil horizons, best available evidence of seasonally shallowest groundwater (including, but not limited to, soil mottling and gleying, static water levels of nearby wells and springs, and local drainage patterns), threats to receptors (supply wells and surface water), and potential geotechnical issues (including, but not limited to, potentially adverse dips of bedding, foliations, and fractures in bedrock).</i>	WATER QUALITY ASSESSMENT Qualified Professional RR Site Evaluation	R&R. Vol I. Chp. 1.B.79 R&R. Vol I. Chp. 2.C
9.1.2	High quality waters and other conditions requiring enhanced protection	Describe special restrictions to meet water quality and public health goals pursuant to all Federal, State, and local plans and orders. <i>Especially consider appropriate alternatives to those provided in Section 7.8, Allowable Average Density Requirements under Tier 1. See also: State Water Resources Control Board Resolution No. 68-16.</i>	Assessment Considerations RR Minimum Lot Size	LAMP R&R.Vol.I.Chp.2. A.5-6

9.1.3	Shallow soils requiring non-standard dispersal systems	<i>We interpret "shallow" soils generally to mean thin soils overlying bedrock or highest seasonal groundwater. Dependent on threats to receptors, highest seasonal groundwater can locally include perched and intermittent saturated zones, as well as the shallowest local hydraulically unconfined aquifer unit. See Section 8.1.5 for Minimum Depths to Groundwater under Tier 1. Qualified professionals should make appropriate determinations on the design and construction of non-standard dispersal systems due to shallow soils.</i>	Engineered Sewage Disposal RR Engineered Systems	R&R.Vol.II.Chp.6
9.1.4	High domestic well usage areas	<i>Our key potential concerns are nitrate and pathogen transport toward receptor wells, especially in areas with existing OWTS already prone to soft failures (OWTS failures not evident at grade). Appropriate qualified professionals should consider reasonable pollutant flow paths toward domestic wells, at minimum based on; publically available nitrate concentrations in local wells, published technical literature on local wastewater and non-wastewater nitrate sources, well constructions, pumping demands, and vulnerability of wells due to local hydrogeology. For pathogens, qualified professionals should ensure that field methods are sufficient to mitigate the potential for false positives.</i>	Assessment Considerations	LAMP
9.1.5	Fractured bedrock	<i>Where warranted, appropriate qualified professionals should assess permeability trends of water-bearing fractures, and related potential pathways of effluent toward receptors, including but not limited to, domestic wells and surface water. The professionals should also consider potential geotechnical issues. We suggest consideration of fractured bedrock in concert with percolation rates of overlying soils; either very high or low percolation rates might warrant siting restrictions or non-standard dispersal systems. See also State Water Resources Control Board Order WQ 2014-0153-DWQ, Attachment 1, page 1-3, Item A-3.</i>	Engineered Sewage Disposal RR Engineered Systems	R&R.Vol.II.Chp.6
9.1.6	Poorly drained soils	<i>Appropriate qualified professionals should give criteria for determination of representative percolation rates, including but not limited to, general site evaluation, trench logging, pre-soak and measurement methods of percolation tests, and acceptable alternatives for percolation tests.</i>	Engineered Sewage Disposal RR Engineered Systems	R&R.Vol.II.Chp.6
9.1.7	Vulnerable surface water	<i>Our key potential concern is eutrophication of fresh surface water. While typically with relatively low mobility in groundwater and recently informally banned in dishwasher detergents, phosphate is a common cause. At minimum, describe appropriate qualified professionals who will consider potential pathways of wastewater-sourced phosphate and other nutrients toward potentially threatened nearby surface bodies.</i>	Assessment Considerations	LAMP
9.1.8	Impaired water bodies	<i>Wolf Creek, Nevada County, and Woods Creek, Tuolumne County will require Tier 3 Advanced Protection Management Programs. This applies to Nevada, Placer, and Tuolumne Counties. See Attachment 2 of the OWTS Policy.</i>	NA	NA
9.1.9	High OWTS density areas	<i>Where nitrate is an identified chronic issue, at minimum, consider nitrogen loading per area; for example, see Hantzsche and Finnemore (1992), Crites and Tchobanoglous (1998), and more recent publications as appropriate.</i>	Assessment Considerations	LAMP
9.1.10	Limits to parcel size	<i>At minimum, consider hydraulic mounding, nitrate and pathogen loading, and sufficiency of potential replacement areas.</i>	LOCAL AUTHORITY RR Minimum Lot Size	R&R.Vol.I.Chp.2. A.5-6
9.1.11	Areas with OWTS that predate adopted standards	<i>This refers to areas with known, multiple existing OWTS.</i>	Assessment Considerations	LAMP

9.1.12	Areas with OWTS either within prescriptive, Tier 1 setbacks, or within setbacks that a Local Agency finds appropriate	This refers to areas with known, multiple existing OWTS.	Assessment Considerations RR Setbacks	R&R.Vol.II.Chp.4.D
9.2	Scope of Coverage:	For Section 9.2 et seq., provide details on scope of coverage, for example maximum authorized projected flows, allowable system types, and their related requirements for site evaluation, siting, and design and construction requirements.	OWTS Requirements	R&R. Vol.1. Chp. 2.A.11
9.2.1	Installation and Inspection Permits	Permits generally cover procedures for inspections, maintenance and repair of OWTS, including assurances that such work on failing systems is under permit; see Tier 4.	OWTS Permit Procedure	Ord.13.12.060-085 Ord.13.12.160-165
9.2.2	Special Provision Areas and Requirements near Impaired Water Bodies	<i>Wolf Creek, Nevada County, and Woods Creek, Tuolumne County will require Tier 3 Advanced Protection Management Programs. This applies to Nevada, Placer, and Tuolumne Counties. See Attachment 2 of the OWTS Policy.</i>	NA	NA
9.2.3	LAMP Variance Procedures	Variances for new installations and repairs should be in substantial conformance to the Policy, to the greatest extent practicable. Variances cannot authorize prohibited items in Section 9.4.	Variance Process	Ord.13.12.140
9.2.4	Qualifications for Persons who Work on OWTS	Qualifications generally cover requirements for education, training, and licensing. <i>We suggest that Local Agencies review information available from the California Onsite Water Association (COWA), see: http://www.cowa.org/</i>	OWTS Qualified Worker RR Qualified Worker	RR.Vol.I.Chp.4.C.5
9.2.5	Education and Outreach for OWTS Owners	Education and Outreach generally supports owners on locating, operating, and maintaining OWTS. At minimum, ensure that you will require OWTS designers and installers to provide owners with sufficient information to address critical maintenance, repairs, and parts replacements within 48 hours of failure; <i>see also Tier 4</i> . Also, provide information to appropriate volunteer groups. <i>At minimum, we suggest providing this information on your webpage.</i>	OPERATION AND MAINTENANCE	RR.Vol.II.Chp.6.A.3
9.2.6	Septage Disposal	Assess existing and proposed disposal locations, and their adequacy.	Septage Recycling	RR.Vol.I.Chp.2.C
9.2.7	Maintenance Districts and Zones	<i>These generally refer to Homeowners Associations, special maintenance districts, and similar responsible entities. Requirements for responsible entities should generally reflect the Local Agency's judgment on minimum sizes of subdivisions that could potentially cause environmental impacts. LAMPs should ensure that responsible entities have the financial resources, stability, legal authority, and professional qualifications to operate community OWTS.</i>	LOCAL AUTHORITY RR Subdivisions on Requirements	RR.Vol.I.Chp.2.A.2-7
9.2.8	Regional Salt and Nutrient Management Plans	Consider development and implementation of, or coordination with, Regional Salt and Nutrient Management Plans; <i>see also State Board Resolution 2009-0011:</i> http://www.waterboards.ca.gov/centralvalley/water_issues/salinity/laws_regs_policies/rw_policy_implementation_mem.pdf	NA	NA
9.2.9	Watershed Management Groups	Coordinate with <i>volunteer well monitoring programs</i> and similar watershed management groups.	WATER QUALITY ASSESSMENT	LAMP
9.2.10	Proximity of Collection Systems to New or Replacement OWTS	Evaluate proximity of sewer systems to new and replacement OWTS. <i>See also Section 9.4.9.</i>	Sanitary sewer connection RR Sanitary Sewer	Title13.12.040 RR.Vol.1.Chp2.A.2

9.2.11	Public Water System Notification prior to permitting OWTS Installation or Repairs	Give your notification procedures to inform public water services of pending OWTS installations and repairs within prescribed setback distances.	Notifications	R&R. Vol. I. Chp.2. Sec. B.4.
9.2.12	Policies for Dispersal Areas within Setbacks of Public Wells and Surface Water Intakes	Discuss supplemental treatments; see Sections 10.9 and 10.10. A Local Agency can propose alternate criteria; <i>however we will need rationale in detail.</i>	RR_Advanced Treatment	R&R.Vol.II.Chp. 6. Sec. G.1.
9.2.13	Cesspool Discontinuance and Phase-Out	Provide plans and schedule.	General Design Considerations RR_Cespools Privies	Title13.12.050
9.3	Minimum Local Agency Management Responsibilities:	For Section 9.3 et seq., discuss minimum responsibilities for LAMP management. Responsibilities should generally cover data compilation, water quality assessment, follow-up on issues, and reporting to the Central Valley Water Board:	Throughout LAMP	LAMP
9.3.1	Permit Records, OWTS with Variances	Describe your records maintenance; numbers, locations, and descriptions of permits where you have granted variances.	Variance Process Title13 Variance	LAMP
9.3.2	Water Quality Assessment Program:	<p>In the Water Quality Assessment Program, generally focus on areas with characteristics covered in Section 9.1. Include monitoring and analysis of water quality data, complaints, variances, failures, and inspections. Also include appropriate monitoring for nitrate and pathogens; you can use information from other programs. <i>We are available to provide further guidance on reporting requirements. In the interim, to assist with analyses and evaluation reports (Section 9.3.3), we suggest posting data on appropriate maps; for example consider the following links:</i></p> <p> http://www.nrcs.usda.gov/wps/portal/nrcs/site/ca/home/ http://www.cdpr.ca.gov/docs/emon/grndwtr/gwpa_maps.htm http://nqmdb.usgs.gov/maps/mapview/ http://www.conservation.ca.gov/cgs/information/publications/ms/Documents/M58.pdf http://www.water.ca.gov/groundwater/data_and_monitoring/northern_region/GroundwaterLevel/SacValGWContours/100t400_Wells_Spring-2013.pdf http://www.water.ca.gov/waterdatalibrary/ http://www.waterboards.ca.gov/gama/docs/hva_map_table.pdf http://geotracker.waterboards.ca.gov/gama/ http://msc.fema.gov/portal </p>	WATER QUALITY ASSESSMENT	LAMP

9.3.2.1	Domestic Well Sampling	<i>Apply your best professional judgment to ensure that well sampling focuses on hydrogeologically reasonable pollutant (primarily nitrate) flow paths. A qualified professional should generally design an appropriate directed, judgmental, sample (i.e., statistically non-random). Of the links provided, the Geotracker GAMA website might be particularly useful to the professional; at minimum we suggest reviews of available nitrate data in relevant domestic wells, up-gradient, within, and down-gradient of an area of interest. For some instances, for example where a developer proposes a relatively large project, a Local Agency might require a special study to distinguish between wastewater and non-wastewater sourced nitrate. In such cases, we suggest your consideration of requiring focused sampling and analyses, for example of $\delta^{18}\text{O}$ and $\delta^{15}\text{N}$ of nitrate (Megan Young, USGS, 2014 pers comm), and the artificial sweeteners sucralose and acesulfame-K (Buerge et al 2009, Van Stempvoort et al 2011, and more recent publications as they become available).</i>	NA	NA
9.3.2.2	Domestic Well Sampling, Routine Real Estate Transfer Related	This applies only if those samples are routinely performed and reported.	NA	NA
9.3.2.3	Water Quality of Public Water Systems	Reviews can be by your agency or another municipality.	Drinking Water Data	LAMP
9.3.2.4	Domestic Well Sampling, New Well Development	This applies if those data are reported.	NA	NA
9.3.2.5	Beach Water Quality Sampling, H&S Code §115885	<i>Public beaches include those on freshwater. Note:</i>	NA	NA
9.3.2.6	Receiving Water Sampling Related to NPDES Permits	This refers to existing data from other monitoring programs.	WATER QUALITY ASSESSMENT	LAMP
9.3.2.7	Data contained in California Water Quality Assessment Database	This refers to existing data from other monitoring programs.	WATER QUALITY ASSESSMENT	LAMP
9.3.2.8	Groundwater Sampling Related to Waste Discharge Requirements	This refers to existing data from other monitoring programs.	WATER QUALITY ASSESSMENT	LAMP
9.3.2.9	Groundwater Sampling Related to GAMA Program	This refers to existing data from other monitoring programs.	WATER QUALITY ASSESSMENT	LAMP
9.3.3	Annual Status Reports Covering 9.3.1-9.3.2	Reports are due 1 February, annually, beginning one year after a Regional Board approves LAMP. Every fifth year also include an evaluation report. Submit all groundwater monitoring data in Electronic Delivery Format (EDF) for Geotracker; submit all surface water data to CEDEN.	WATER QUALITY ASSESSMENT	LAMP
9.4	Not Allowed or Authorized in LAMP:	For Section 9.4 et seq., ensure that your LAMP covers prohibitions.	Throughout LAMP	Title13 & R&R
9.4.1	Cesspools	Local Agencies cannot authorize cesspools of any kind or size.	RR Cesspools Privies	Title13.12.050
9.4.2	Projected Flow greater than 10,000 gpd	<i>Apply professional judgment to further limit projected flows.</i>	LOCAL AUTHORITY	LAMP Not addressed in Code

9.4.3	Effluent Discharger Above Post-Installation Ground Surface	For example, Local Agencies cannot authorize effluent disposal using sprinklers, exposed drip lines, free-surface wetlands, and ponds.	LOCAL AUTHORITY	LAMP CC Code does not address as a viable way of waste disposal
9.4.4	Installation on Slopes greater than 30% without Registered Professional's Report	<i>See also earlier comments, Section 9.1.1, regarding potential geotechnical concerns.</i>	RR Engineered Systems RR Site Evaluation	R&R.Vol.I.Chp.2. C.2.d
9.4.5	Decreased Leaching Area for IAPMO-Certified Dispersal System with Multiplier less than 0.70	IAPMO refers to International Association of Plumbing and Mechanical Officials. <i>Decreased leaching area refers to alternatives to conventional (stone-and-pipe) dispersal systems; these alternatives require relatively less area. The multiplier, less than 1, allows for a reduction in dispersal field area relative to a conventional system.</i>	N/A gravel less leaching	N/A Multiplier not used in Calaveras County
9.4.6	Supplemental Treatments without Monitoring and Inspection	<i>Therefore, ensure that the LAMP describes periodic inspection and monitoring for OWTS with supplemental treatments.</i>	RR Advanced Treatment RR System Monitoring	R&R.Vol.II.Chp.6 .A.3
9.4.7	Significant Wastes from RV Holding Tanks	<i>We interpret significant amounts to mean amounts greater than incidental dumping, such that volume, frequency, overall strength, or chemical additives preclude definition as domestic wastewater; see Definitions in OWTS Policy. See also, State Water Resources Control Board Order WQ 2014-0153-DWQ, Attachment B-2.</i>	OWTS Requirements	R7R. Vol.1. Chp. 2. Sec. A. 12.
9.4.8	Encroachment Above Groundwater	Bottom of OWTS dispersal systems cannot be less than 2 feet above groundwater, or bottom of seepage pits, less than 10 feet above groundwater. <i>We interpret groundwater to include inter-flow and perched zones, along with the shallowest main unconfined aquifer. Degree of vulnerability to pollution due to hydrogeological conditions, Section 9.1.1, and the Water Quality Assessment, Section 9.3.2., should cover in detail means of assessing seasonally shallowest depth to groundwater.</i>	Engineered Sewage Disposal RR Engineered Systems RR Standard System Design	R&R.Vol.II.Chp.5 R&R.Vol.II.Chp.6
9.4.9	Installations Near Existing Sewers	New and replacement OWTS cannot occur on any lot with available public sewers less than 200 feet from a building or exterior drainage facility (exception; connection fees plus construction costs are greater than 2 times the replacement OWTS costs, and Local Agency determines no impairment to any drinking water.)	Title13 Sewer Connection RR Sanitary Sewer	Title13.12.040 R&R.Vol.I.Chp.2. A.1-2
9.4.10	Minimum Setbacks:	These setbacks are from public water systems.	RR Setbacks	R&R. Vol. II. Chp. 4. Sec. D.1
9.4.10.1	From Public Supply Wells	If the dispersal system is less than 10' in depth, then the setback must be greater than 150' from public water supply well.	RR Setbacks	R&R.Vol.II.Chp.4 .D
9.4.10.2	From Public Supply Wells	If the dispersal system is greater than 10' in depth, then the setback must be greater than 200' from public water supply well.	RR Setbacks	R&R.Vol.II.Chp.4 .D
9.4.10.3	From Public Supply Wells, Regarding Pathogens	If the dispersal system is greater than 20' in depth, and less than 600' from public water supply well, then the setback must be greater than the distance for two-year travel time of microbiological contaminants, as determined by qualified professional. In no case shall the setback be less than 200'.	RR Setbacks	R&R.Vol.II.Chp.4 .D
9.4.10.4	From Public Surface Water Supplies	If the dispersal system is less than 1,200' from public water system's surface water intake, within its drainage catchment, and potentially threatens an intake, then the setback must be greater than 400' from the high water mark of the surface water body.	RR Setbacks	R&R.Vol.II.Chp.4 .D

9.4.10.5	From Public Surface Water Supplies	If the dispersal system is greater than 1,200' but less than 2,500' from public water system's surface water intake, within its drainage catchment, and potentially threatens an intake, then the setback must be greater than 200' from high water mark of surface water body.	RR Setbacks	R&R.Vol.II.Chp.4 .D
9.4.11	Supplemental Treatments, Replacement OWTS That Do Not Meet Minimum Setback Requirements	Replacement OWTS shall meet minimum horizontal setbacks to the maximum extent practicable.	RR Setbacks RR Advanced Treatment RR System Repairs	R&R.Vol.I.Chp.4. C
9.4.12	Supplemental Treatments, New OWTS That Do Not Meet Minimum Setback Requirements	New OWTS shall meet minimum horizontal setbacks to the maximum extent practicable, and meet requirements for pathogens as specified in Section 10.8., and any other Local Agency's mitigation measures.	RR Setbacks RR Advanced Treatment RR System Repairs	R&R.Vol.I.Chp.4. C
9.5	Technical Support of LAMP	Include adequate detail to ensure that the combination of all proposed criteria will protect water quality and public health sufficiently to warrant the Central Valley Water Board's waiver of Waste Discharge Requirements, pursuant to §13269, California Water Code.	Throughout LAMP	Throughout Title 13 and R&R
9.6	Regional Water Quality Control Board Consideration of LAMP	Regional Boards shall consider past performance of local programs to protect water quality. <i>We will generally consider past performance based on our reviews of annual status and evaluation reports; see Section 9.3.3.</i>	N/A	N/A

Calaveras County Local Area Management Plan for Onsite Wastewater Management

INTRODUCTION

This document represents the Local Agency Management Program (LAMP) for oversight of onsite wastewater treatment systems (OWTS) within Calaveras County, California. This LAMP has been prepared in accordance with the requirements of the State Water Resources Control Board (SWRCB) Water Quality Control Policy for the Siting, Design, Operation and Maintenance of Onsite Wastewater Treatment Systems, dated June 19, 2012 (Policy). This Policy describes four “Tiers” of onsite wastewater treatment system management. Tier 2 describes the requirements for developing a LAMP which when approved, becomes the standard by which authorized local agencies regulate OWTS. An approved LAMP is equivalent to a “Conditional Waiver of Waste Discharge Requirements” for OWTS within the local agency jurisdiction.

This LAMP has been prepared by Calaveras County to obtain approval for OWTS management under Tier 2 of the OWTS policy. As noted in the Policy, responsible local agencies are recognized as the most effective means to manage OWTS on a routine basis. As such, the Policy is intended to allow Calaveras County to continue providing local oversight of OWTS through a local program that is an alternative to the Tier 1 standards but still meets the Policy purpose which is to protect water quality and public health.

Calaveras County is located within the Sierra Nevada Mountains. The terrain ranges from low rolling foothills in the western portion of the County to rugged high mountains, with elevations over 8,000 feet, in the east. The County is located in central California Approximately 120 miles east of San Francisco and 105 miles southwest of Lake Tahoe and encompasses over 1,000 square miles or approximately 663,000 acres.

The 2013 Census estimates the population of Calaveras County at 44,515 people. Approximately 75% of homes and 20% of businesses in Calaveras County are served by individual OWTS. Angels Camp is the only incorporated city within Calaveras County, which has access to a public sewer collection system. There are 21 other public utility agencies that provide wastewater collection, treatment and disposal services to a number of residents spread throughout the County. Some of these agencies may serve fewer than 20 homes and the wastewater may be disposed of through a community disposal field. This LAMP only applies in areas of the county not served by wastewater treatment systems operating under waste discharge requirements issued by the Regional Board.

The density of development within Calaveras County is influenced by corridors formed by Highways 49, 4, 26 and 12. The most intense areas of development radiate out from these highways. There are three major population hubs that rely on individual OWTS for wastewater treatment and disposal. The largest population hub is the Rancho Calaveras Subdivision and surrounding area located in the Valley Springs area along Hwy 26. Rancho Calaveras has approximately 3,465 lots, but all of the lots are not developed and some cannot be developed due to a lack of suitable conditions for wastewater disposal. The Copper Cove Subdivision and surrounding areas along Highway 4 at the west end of the County could have approximately 1,000 OWTS. The Arnold area along Highway 4 in the east end of the County is made up of numerous subdivisions that rely on OWTS for wastewater disposal.

The Calaveras County Onsite Wastewater Department (CCOWD) has been charged with the responsibility for regulating OWTS throughout Calaveras County. In order for individual dischargers to qualify for the state's conditional waiver of waste discharge requirements, CCOWD operates its onsite wastewater treatment program under the authority granted by the Central Valley Regional Water Quality Control Board (CVRWQCB) and hereby seeks approval of this LAMP for the entire county.

ADOPTION PROCESS

The OWTS Policy requires counties to submit a LAMP by May 13, 2016. This LAMP primarily describes the existing local wastewater management program, but also identifies areas of Calaveras County Code that will need to be amended and new reporting requirements to satisfy the minimum requirements of the OWTS Policy. These proposed changes will not substantially alter the wastewater treatment program or the way septic systems are installed. Rather, they include items like: increased setbacks to drinking water wells; further notification standards for drinking water intake sources of nearby failing systems; and further defined license and registration requirements of qualified professionals authorized to perform a range of OWTS services. The LAMP also identifies new responsibilities of CCOWD to submit reports to the Regional Water Quality Control Board, both annual reports that summarize permit and inspection activities, and 5-year water quality assessments. Where needed to comply with the OWTS Policy, these changes are identified throughout this LAMP.

The Policy requires citations for specific legal authority for CCOWD to carry out the roles and responsibilities outlined in the LAMP. In order to satisfy these requirements, this LAMP will need to be adopted by reference into Calaveras County Code. Since changes to County Code will be made to ensure consistency with state law, these changes are not growth inducing, and the State Water Resources Control Board prepared an Onsite Wastewater Treatment System Policy Final Substitute Environmental Document dated June 19, 2012, statewide compliance with the California Environmental Quality Act (CEQA) has been ensured.

CVRWQCB is requesting a Resolution from the Calaveras County Board of Supervisors confirming their intent to make the specified Code changes contained herein, including adopting this LAMP by reference to County Code. The local code change process can begin after LAMP review and concurrence by CVRWQCB staff. Once the local ordinance is updated through our local process, CCOWD will submit the revised ordinance, the LAMP, and an interested parties list to CVRWQCB staff. Assuming no outstanding issues, CVRWQCB staff will then separately prepare and publicly notice another tentative Resolution for its Regional Board to consider approving our LAMP as an uncontested item at a regularly scheduled meeting. This entire process must be completed no later than May 2017. Once the LAMP is approved by CVRWQCB, the LAMP provisions of reporting and monitoring will be effective in May 2018.

LOCAL AUTHORITY

Title 13 Chapter 12 of the Calaveras County Code of Ordinances (County Code), which was originally adopted in 1980, is the basis for sewage disposal regulation. It specifies requirements for prohibited acts, permitting, variances, violations, enforcement and rules and regulations. The County Code is attached to this LAMP as Appendix A.

The County Code references the Calaveras County Rules and Regulations for Onsite Wastewater Treatment Systems (Rules and Regulations), originally adopted in 1992, which specifies requirements for the development of new and existing lots and parcels throughout Calaveras County. It prescribes the system design, location, construction and maintenance standards of OWTS to ensure all wastewater generated is adequately and safely disposed to protect public health and the environment. These Rules and Regulations are attached to this LAMP as Appendix B.

The Rules and Regulations pertain to waste disposal from land developments. Among other things, it specifies surface and subsurface testing and suitability requirements for wastewater disposal during the creation of new lots and parcels in Calaveras County.

The requirements for creating a new parcel in Calaveras County are very similar to the requirements for constructing an OWTS on an existing parcel. There are two requirements that are more stringent when creating a new parcel. The Rules and Regulations have density requirements, in the form of designated sewage disposal area, for creating new lots or parcels. Depending on site conditions, a new parcel may need to set aside up to 18,000 square feet of area exclusively for wastewater disposal. For existing lots, the area required is simply the disposal field and replacement area. Depending on site conditions, this may only require a few hundred square feet. The minimum lot size allowed is one acre when public water is available and five acres when serviced by a well.

Taken together, these codes are the regulatory basis for waste disposal throughout Calaveras County. Throughout this LAMP references to specific Calaveras County Code and Rules and Regulation Sections will be made.

Though not currently specified in County Code or the Rules and Regulations, this LAMP will apply only to projected wastewater flows up to 10,000 gallons per day. Similarly, this LAMP will not apply to systems which produce high strength wastewater (as defined in the OWTS Policy), or OWTS dedicated to receiving significant amounts of waste from recreational vehicle holding tanks (per Policy Section 9.4.7). After concurrence from the CVRWQCB, Title 13 Chapter 12 of County Code and the Rules and Regulations will need to be amended to state these limitations and ensure the local code is consistent with the SWRCB OWTS Policy. Further recommendations to amend County Code and the Rules and Regulations for consistency with the OWTS Policy are highlighted throughout this LAMP.

These codes have been effective in protecting groundwater quality and public health in Calaveras County for many years as evidence by the lack of impaired water bodies due to OWTS in the county and the lack of impacted public water supply wells. This past performance of the local program adequately protecting water quality with criteria differing from the Tier 1 standards is strong endorsement of the existing local program and this LAMP and should be considered according to section 9.6 of the OWTS policy.

ADMINISTRATION

OWTS Permit Procedure Overview

County Code 13.12.050 specifies that it is unlawful for any person to construct or operate any septic tank, sewage treatment works, sewer pipes or conduits, drainage systems, or other means for the disposal, treatment or discharge of sewage without first obtaining a sewage disposal permit therefor from the agency administrator. This includes replacement or repairs to failing systems and is consistent with the requirement of Section 9.2.1 of the OWTS Policy. The enforcement and violation provisions are found in County Code 13.12.170 and 13.12.180, they have proven to be adequate to protect public health and water quality. Upon adoption of this LAMP by the Regional Board, all new or replacement OWTS permitted in accordance with this LAMP will be Tier 2 systems.

OWTS application requirements are found in County Code 13.12.070 and the Rules and Regulations Volume I, Chapter 2B. All applications for wastewater permits are filed with the CCOWD and require submittal of a detailed scaled plot plans with detailed information and the appropriate fee. This information is entered into Permit Plus database for financial and permit tracking. At the time the application is submitted, staff will ensure that the contractor of record holds an appropriate license. Currently, the property owner or current California State

Contractors with the Licensing Board Class A (General Engineering), Class C42 (Sanitation System) and Class C36 (Plumbing) are issued a permit to install an OWTS.

The Calaveras County Building Department also utilizes the Permits Plus database for financial and permit tracking. All applications for building, grading, and subdivisions are routed through the CCOWD to verify the required onsite wastewater requirements have been satisfied. When an application is received by CCOWD, clerical staff will combine the application with any additional site suitability data, or other information in the vicinity of the project which may be relevant to onsite waste disposal. Afterwards, the application is forwarded to the assigned Registered Environmental Health Specialist (REHS) for further processing and possible field review.

The assigned REHS performs an office review of the submitted data. If the data is acceptable and satisfies the submittal requirements for the proposed project, the REHS can approve the CCOWD portion of the project. If there is not adequate data to approve the project in the office, additional data will be required or a site visit may be necessary. If additional testing or site information is required (as discussed in the Site Suitability Section of this LAMP), arrangements are made to complete this testing before the process moves forward.

For sites suitable for a standard OWTS, the design criteria (as discussed in the Design Section of this LAMP) are specified by the field REHS. These specifications are included in the permit to construct issued by CCOWD. The REHS is also responsible to inspect and ensure the system is installed as designed. All EH activities associated with the OWTS application, permit and inspection process are recorded on the field inspection log, Application and in the Permits Plus database, which becomes a part of the permanent record for that parcel.

For sites requiring alternative design, the design criteria are specified by a California Registered Engineer, Geologist, or Registered Environmental Health Specialist (generally referred to as the qualified professional or consultant). The role of the field REHS is to confirm the proposed system can satisfy County Code and the Rules and Regulations, but they do not design the system in these instances. Instead, the qualified professional's specifications become a condition of the permit to construct the system issued by the CCOWD. In this case, the qualified professional is responsible to ensure the system is constructed as designed with additional oversight provided by the REHS. The field inspection log, application, and Permits Plus database is also used to record activities for these systems and becomes part of the permanent record for the parcel.

The permit to construct is valid for a period of one (1) year from the date of issue. The permit and a copy of the approved plot plan will be issued to the applicant and/or contractor when the installation permit is issued. The permit and approved plot plan list all of the information

necessary to construct the system, including the size, configuration, maximum depth of excavation, and special conditions of installation. Construction may begin once the permit is issued.

During construction, two inspections will be completed by CCOWD staff to verify the OWTS was installed as specified (Rules and Regulations, Chapter 5C). The first inspection (open trench inspection) is done when the disposal trenches have been excavated, the septic tank is in the excavation but not backfilled, and all of the required material (Drain rock, pipe, leaching chambers, distribution box, ETC.) is onsite. If the open trench inspection is satisfactory, it is recorded on the required forms and in the Permits Plus database, then construction can proceed. If installation is found to be contrary to permit conditions or the approved plot plan, corrections must be completed before construction is allowed to continue. When the construction is complete, a final inspection is required. During the final inspection CCOWD staff will verify items such as proper grading, capping fill depth, monitoring wells, and proper float and pump operation. At this time, an as-built drawing is completed by CCOWD staff to identify the location and dimensions of the disposal field and septic tank. If the OWTS is an alternative design, the qualified professional is required conduct the same inspections and submit a final letter of certification stating the construction of the OWTS was observed and found to be in substantial conformance with approved plans (Rules and Regulations, Chapter 6A.6). If CCOWD staff determines the installation satisfies the Rules and Regulations, final approval is granted and the required forms are completed and the Permits Plus database is updated.

Permit expiration and extensions

After a site and soils evaluation has been completed and plans have been approved, the applicant has one (1) year from the date of approval to apply for permit to construct. This approval may be extended one time for a period not to exceed one hundred eighty days upon written request by the applicant (County Code 13.12.075).

A permit to construct is valid for one (1) year from date of issue. When the applicant is issued a permit to construct, they will receive two copies of plans and specifications stamped "APPROVED". Such plans and specifications shall not be changed, modified or altered without authorizations from the agency administrator, and all work shall be done in accordance with the approved plans. The agency administrator may extend the time for action for a period of one (1) year upon written request. Such request for extension shall be subject to conformance with the Rules and Regulations at the time of request. In order to renew work on permit after expiration, the permittee shall pay a new permit fee, provided the plans conform with current Rules and Regulations and the permit has not been expired for a period of more than one (1) year.

Permanent Records

Once an application is made for the construction or repair of an OWTS, all paperwork associated with the design and installation is placed into a file for that specific assessors parcel number. All files are saved and placed into filing cabinets. The CCOWD has records dating back to the early 1970's. In 1992, the Calaveras County Building Department began using the Permits Plus database system for tracking permits and financial information. This database has information such as fees paid, inspections completed, permits issued and some limited information on the size of the OWTS (number of bedrooms, overall footage, trench depth and width, etc.). All records pertaining to each onsite wastewater treatment systems (OWTS) permitted by the County shall be retained permanently. These records shall be made available for review within 10 working days upon written request by the Regional Water Board. The records for each permit shall reference the Tier under which the permit was issued.

Complaint process

Anyone witnessing a violation of County Code, including a failing OWTS, improper sewage disposal, illegal or unpermitted installation of a sewage disposal system, or other health and safety concerns is encouraged to report this to CCOWD. CCOWD accepts complaints submitted on an official complaint form via email, fax or in person. The complaint form requires information which allows CCOWD staff to accurately locate property, contact complainant and identify type of hazard. Once a complaint is received, the assigned field REHS performs an investigation. This may include contacting the responsible party, conducting a site visit, or taking other actions as needed to investigate the complaint.

If a complaint investigation leads to discovery of an OWTS failure, then a notice of violation is issued to the property owner which states the violations and issues a timeline for abatement and/or repair. A failing OWTS includes, but is not limited to, any system which discharges untreated or incompletely treated wastewater or septic tank effluent directly or indirectly onto the ground surface or into public water that results in the creation of a public nuisance or creates a potential health hazard.

Any OWTS failure specified in OWTS Policy Section 11.1 or 11.2, including but not limited to pooling effluent, evidence of previous discharges to the ground surface, or structural septic tank failure will be subject to further investigation regarding the location where the failure is occurring. If field REHS determines that the failure is within 150 feet of a public water supply well, or within 2,500 feet of a public water system surface water intake point and located such that it could potentially impact surface water quality at the intake point, the public water supplier and the State Board Division of Drinking Water may be notified, (Rules and Regulations Chapter 4D). According to OWTS Policy Section 3.5, this notification needs to be provided within 72 hours of CCOWD discovering this condition.

Hard copies of the written description of the original complaint, along with the REHS field notes describing what was found, notifications made, and how the issue was resolved are maintained in complaint files in the CCOWD office. A brief summary of the location, nature of the complaint and how it was resolved are recorded in the Envision Connect database under the assessor's parcel number.

Variance process

Calaveras County Code contains provisions for granting administrative variances of certain OWTS requirements. The agency administrator may grant an administrative variance from any standard set forth in the Rules and Regulations where written substantial evidence is submitted by a qualified professional, that an unusual circumstance or unnecessary hardship would result from the application of the standard. Under no circumstance shall the granting of a variance create a hazardous condition or endanger public health, safety or the environment, (County Code 13.12.140).

For instance, a reduction in the required setbacks from a property boundary to a proposed disposal field may be approved by the agency administrator. Historically, such variances are uncommon. When granted, variances are typically issued in response to mitigating limiting site constraints or in repair situations. It is highly unlikely that a variance for the reduction in depth to groundwater or soil separation below bottom of trench would be granted unless an OWTS is actively failing, posing a threat to water quality and public health, and there are no other options. Other mitigating factors are also considered, such as supplemental treatment, off-site disposal options, or other restrictions necessary to protect groundwater quality and public health. Variances for the reduction in the setbacks to water wells have always involved pre-treatment and/or a deeper sanitary seal.

However, supplemental treatment is not practical or even possible in all cases. Property owners on fixed incomes, with upside down mortgages or when the cost of supplemental treatment approaches total property values may not be able to afford such systems. Enforcement action and potentially vacating such residences is not a viable solution. In these cases, professional judgment and discretion are used to make the most of a bad situation and gain the most water quality and public health improvements that are practical in the current situation. This may include meeting replacement standards to the greatest extent practicable as determined by the agency administrator.

Outreach and education

The Onsite Wastewater page of the Calaveras County website <http://envhmgmt.calaverasgov.us/EnvironmentalHealth/OnSiteWastewater.aspx> is a primary means of public education and outreach. Here a variety of information is available, such as

basic OWTS operation and maintenance, variance forms, Rules and Regulation, fee schedule, plot plans requirements and complaint forms. This information is updated periodically as conditions and information needs change. A variety of educational handouts and brochures are also available in the EHD/CCOWD Office in San Andreas.

Annual Reports

CCOWD will provide annual reports on OWTS program activities to the Central Valley Regional Water Quality Control Board. Unless otherwise requested, reports will be submitted within sixty (60) days of the close of the calendar year. Reports will be submitted in tabular format from an Excel spreadsheet and will include:

- Number and location of complaints pertaining to OWTS operation and maintenance, and a summary of how these issues were resolved, and
- Registrations issued as part of the septic tank cleaning registration program (California Health and Safety Code Section 117400 et seq.), with copies of data on septic tank cleaning locations and septage disposal volumes and locations available upon request; and
- Number, location and description of permits issued for new and replacement OWTS, including the regulatory tier under which they were issued. (See Figure 2 below)

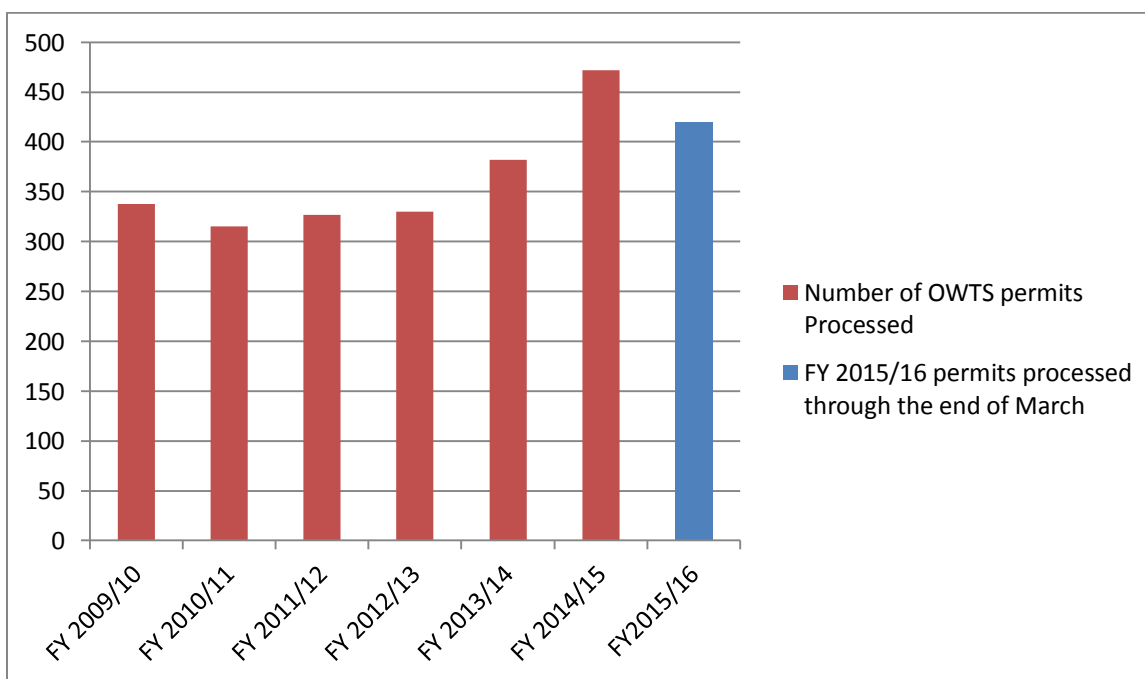


Figure 2

SITE SUITABILITY EVALUATION

Calaveras County requires a site and soils evaluation for all parcels prior to the development of an OWTS. A permit for excavation of profile holes is required as part of all site and soils evaluation to establish a log of soil formations and groundwater level in an area that is within the proposed disposal and expansion area. The requirement for a profile permit may be waived when, in the opinion of the CCOWD, there is sufficient existing data. Property corners shall be clearly marked for the profile inspector on all parcels less than two (2) acres in size, (Rules and Regulations Chapter 2C). A Qualified Professional shall assess all field investigation data and/or existing data to properly site all OWTS. The Qualified Professional shall identify related siting restrictions and design criteria to protect water quality and public health.

At a minimum, field Investigations will require the following information:

Minimum effective soil depth. A minimum of four reasonably spaced profile trenches, two in the initial and two in the replacement area are required to define a disposal area. In areas where soils are known to be variable, or where the initial profiles demonstrate differing or variable soil conditions, additional profiles may be required. See Volume II for specific soil depth requirements. The United States Department of Agriculture (USDA) systems of soils classification shall be used for the profile descriptions. Each profile log shall include ground slope, effective soil depth, estimated and observed depth to perched and/or permanent groundwater, and a description of each prominent soil horizon which includes: depth, moist color, texture, structure, consistency, field moisture, and estimated permeability. Other USDA soil horizon descriptions may be included along with other comments. Horizon descriptions must be reported in the sequence prescribed by the USDA.

Minimum depth to perched or permanent groundwater. The depth to water shall be based on observations of soil characteristics in the profiles including soil moisture and mottling.

Soil permeability based on percolation testing. A percolation rate of one-hundred twenty (120) mpi at proposed trench depth or faster is required for a standard system. Rates between one hundred-twenty one (121) and two hundred-forty (240) mpi require engineered system designs.

Ground slope. Disposal areas in which the ground slope exceeds thirty (30) percent are unacceptable for standard systems. Ground slope in proposed disposal areas where capping fill is recommended shall not exceed twenty-five (25) percent unless special site specific erosion control and slope stability measures are specified by a qualified professional.

Fill Banks. Disposal fields shall not be placed in fill banks.

During a site and soils evaluation, all possible site constraints are observed and evaluated. Additional site constraints may include cut banks, wells, drainages, lakes, ponds, existing development, easements, and area available for OWTS.

Percolation testing and groundwater monitoring requires the services of a Registered Civil Engineer, Registered Environmental Health Specialist or Registered Geologist with Specialty Certification in Engineering Geology, as recognized by the State of California Department of Consumer Affairs. Registered Geologists without the Specialty Certification in Engineering Geology may conduct soils investigations but may not perform designs or submit plans for sewage disposal system construction. These classifications meet the definition of a *qualified professional* as described in the OWTS policy.

Sanitary sewer connection

An OWTS permit shall be required for any development with plumbing fixtures on any parcel not served by a community wastewater delivery system. An OWTS Permit shall not be issued if a community wastewater delivery system is within 200 feet distance from the residence or when a wastewater district requires connection to the public sewer within a sewer service area (community service area) unless otherwise approved by the district responsible for the wastewater system. Structures within 200 feet of an approved sanitary sewer, with a viable means to connect and access through easements or right-of-ways can be obtained, will not be issued a permit to install an OWTS, (Rules and Regulations Chapter 2A.1 & 2).

Separation distances and setbacks

Overall, OWTS will meet the horizontal setback requirements specified in Tier 1. The minimum setbacks are referenced in the Rules and Regulations Chapter 4D and a summary is shown below.

Setback Requirements

The minimum setback distance from the components of an OWTS shall be as follows:

Minimum Horizontal Distances Required From	Septic Tank & Other Treatment Units	Disposal Field & Other Disposal Units	Measured From
Any water supply well (private)	100'(1)	100'	Center of well
Any water supply well (public)	150'	150'	Center of well
Water supply pipes (on-site)	10'	10'	Center of pipe

Flowing streams (2)	50'	100'(3)	10-yr flood line
Private lake or reservoir	50'	200'(4)	Normal high water line
Public water supply, lake, reservoir or flowing water body	200'	200'(14)	(high water mark)
Property line < five acres	10'	10'(5)	Edge of tank or trench/bed
Property line > five (5) acres	50'(12)	50'(12)	Edge of tank or trench/bed
Buildings or structures on continuous or pier foundations	5'(13)	10'(6)	Outside edge of foundation
Distribution box	3'	5'	Edge of box
Disposal Field	5'	-	Edge of trench/bed
Seasonal drainage course	25'	50'(7)	Edge of bank
Driveway, patio or other hard surface (9)	- (8)	10 (9)	Edge of feature
Cutbanks	10'	4 x ht. (10)	Top edge of cut
Utility/Road easements	- (11)	- (11)	Outside line of easement

Where the effluent disposal area is within 1,200 feet from a public water systems' surface water intake and within the catchment of the drainage, the disposal area shall be no less than 400 feet from the high water mark of the lake, reservoir or flowing water body.

Where the effluent disposal area is located more than 1,200 feet, but less than 2,500 feet from a public water systems' surface water intake and within the catchment area of the drainage, the disposal area shall be no less than 200 feet from the high water mark of the lake, reservoir or flowing water body.

Percolation testing

Following CCOWD review of the results and recommendations from the site and soils investigation, requirements for percolation testing may be waived. Where percolation testing is waived, OWTS design shall be based on the approved design criteria from the soil mantle investigations. Designers are advised that percolation testing is used as a tool for site evaluation and not necessarily as an absolute rule for justifying the suitability of an area. Modification of the percolation testing depth or procedures may be required in unusual circumstances. When the requirement for percolation testing is not waived, procedures shall be consistent with a recognized and published standard, including presoak and testing under stabilized rate conditions. Percolation testing must be performed at the depth and location of the proposed drainage system or deeper. See the Rules and Regulations, Volume II, Chapter 2C for percolation testing requirements.

For the creation of new lots or parcels, rates faster than five (5) minutes per inch or slower than one hundred twenty (120) minutes per inch are unacceptable, (Rules and Regulations, Volume I, Chapter 3A). Existing parcels where percolation test results exceed one hundred twenty (120)

minutes per inch are unacceptable for an OWTS. Rates from one hundred twenty (120) minutes per inch to two hundred forty (240) minutes per inch are acceptable if advanced treatment is utilized in the OWTS, (Rules and Regulations, Volume II, Chapters 5 & 6). **Soil**

Profile Testing

Soil mantle profile testing is required for the creation of new lots and on existing parcels. It is an integral part of the site and soils evaluation. Backhoe excavations are conducted in the presence of a representative of CCOWD, and in some situations, the applicant's consultant to identify soil type, soil structure, soil consistency, hardpan, impermeable soils, saturated soils or bedrock. Visual observations are often adequate to determine site and soil suitability, but percolation tests may be required in conjunction with the profile excavations. Soil testing completed prior to the adoption of the last revised version of the Rules and Regulations may be acceptable if performed and recorded in conformance with the current requirements. See the Rules and Regulations, Volume II, Chapter 2A & 2B for reference.

All soils mantle profile tests shall be reported on log sheets that utilize the United States Department of Agriculture (USDA) system of soil classification. If the site and soil conditions require an OWTS alternative design, then the applicant's consultant must submit a signed, written summary of the findings of the soil profile mantle testing that includes appropriate soil log descriptions and general observations. This soils summary is submitted in conjunction with the alternative design plans.

These requirements are consistent with the site evaluation requirements of OWTS Policy Section 7.2.

Groundwater level testing

On parcels where seasonal high groundwater is suspected or known, the property owner or their designated representative must demonstrate adequate separation between the highest seasonal groundwater and the bottom of the drainage field. This determination is also made by CCOWD staff and is made based on an historical records search, site and soils investigation, the presence of hydrophilic vegetation, site topography and other information.

The current Rules and Regulations allow development on existing lots and creation of new lots when the minimum separation from trench bottom to seasonal groundwater is twenty four (24) inches and an advanced treatment OWTS is utilized, (Rules and Regulations, Volume II, Chapter 6.G.3)

OWTS DESIGN

General Design Considerations

All OWTS must consist of a septic tank and a subsurface drainage system (leach bed, trench, or gravel-less chamber) per the Rules and Regulations, Volume II, Chapter 5. All sewer wells, cesspools or privies are public nuisances and it is a violation to construct, maintain or operate a sewer well, cesspool or privy, (County Code 13.12.050). If the CCOWD discovers an existing sewer well, cesspool, or privy, it will be destroyed as soon as practically feasible and replaced with a conforming OWTS.

Septic tank design, construction and surface access riser requirements are specified in the Rules and Regulations, Volume II, Chapter 4B. Capacities for septic tanks serving residential applications are based on the number of bedrooms served, see following table:

<u>Number of Bedrooms</u>	<u>Capacity</u>
2–3 bedrooms	1200 gallons
4 bedrooms	1500 gallons
5 bedrooms	2000 gallons

When septic tank effluent cannot be delivered to the drainage system via gravity-flow piping, a septic tank effluent pumping system may be utilized. If a pump is required, electrical permit issued by the Building Department may also be required.

Larger residential (6 bedrooms or more) or commercial applications are based on the maximum estimated daily wastewater flows according to the Rules and Regulations, California Plumbing Code or another generally accepted reference manual and must be approved by CCOWD. A qualified professional is required to design any OWTS in these applications. Estimated sewage flow rates can be based on either the type of occupancy or the fixture units served, whichever is greater. Septic tank sizing is also by the Rules and Regulations or the California Plumbing Code.

Shared wastewater disposal systems, defined as serving multiple lots in a single area, are not an acceptable means of sewage disposal unless it is part of a community wastewater delivery system that is managed by a public agency. During the 1960's and 1970's, some subdivisions in Calaveras County were created with community disposal field areas. If one of these existing community disposal field systems fails, then each property owner is required to develop an OWTS on their specific parcel and adhere to the current Rules and Regulations. There have been several occasions where existing homes do not have adequate site and soil conditions on their parcel and a new OWTS is designed in the community disposal field area.

In conjunction with estimated wastewater flows, soil profile mantle testing and/or percolation test results determine the absorption area sizing requirements of the drainage system. For residential applications, absorption area requirements are determined by the number of bedrooms served. The Rules and Regulations require a design flow of 150 g/d/sq.ft. per bedroom and every OWTS must be sized for 2 bedroom minimum. The following equation is used to determine length of required disposal trench:

$$L = \frac{Q}{q \times a}$$

L = Minimum total length of disposal trench in feet.

Q = Average liquid wastewater flow in gallons per day.

q = Application rate in gallons per day per square foot of effective seepage area.

a = The effective seepage area per foot of trench. The maximum value of “a” allowed is five (5) square feet per lineal foot. Length of trench is determined by the inclusion of sidewall and bottom area for purposes of absorption.

A bedroom is a conditioned room used for sleeping and/or any room within a dwelling which could be used as a bedroom or guest room as defined in the Rules and Regulations. Offices, studies, sewing rooms, dens, etc. which have a closeable door, or a closet, or direct access to a bathroom are considered bedrooms. Loft areas are considered bedrooms. This prohibits excessive loading of an OWTS that is inadequately sized for future owners or future wastewater flows. The Agency Administrator shall have authority in disputes arising over the designation of a bedroom and may consider bedroom exemptions on a case by case basis. When planning bedroom additions, any required septic system upgrade must be completed before the building permit can be issued.

Following these general considerations, a site may be placed into one of the following four design categories: suitable for a standard OWTS, suitable for an engineered/alternative OWTS, suitable for an advanced treatment OWTS, or not suitable for OWTS.

Not Suitable for Onsite Wastewater Disposal

New construction on undeveloped lots which cannot satisfy all of the setbacks, percolation or soil depth requirements are not suitable for an OWTS installation. Owners of these lots typically need to explore offsite options. Connecting to a nearby sanitary sewer system has been successful in some cases, particularly if multiple properties would benefit from that connection and can share costs. If an adjoining parcel has adequate usable area, a sewage disposal easement may be negotiated between the property owners, or occasionally a neighbor is interested in selling a portion of their suitable area and a lot line adjustment or parcel merger can be recorded between the parties. In any case, the site conditions at the location of the

OWTS dictate the design and construction requirements for the new system and the proposed location must meet County Code and the Rules and Regulations. Expansion of existing systems, such as to serve additional bedrooms or other increases in wastewater flow, are treated as new construction and must also meet County Code and the Rules and Regulations.

For lots with existing structures that cannot meet all of the current site and soils requirements, the offsite options discussed above may be viable alternatives. If none of these can be utilized, an assessment of the property is made to determine the current septic system location and construction and to evaluate 'best available' options. If the best available option will improve a bad situation but fails to meet the current OWTS requirements, a variance may be appropriate. For instance, if the separation distance from the existing OWTS disposal field to the onsite domestic well is seventy five (75) feet, rather than the current code requirement of one hundred (100) feet, a variance can be considered. Other mitigating factors are also considered, such as pressure distribution, supplemental treatment, or other enhancements as deemed necessary to protect groundwater quality and public health.

Standard Sewage Disposal Systems

The specifications for a standard OWTS are found in the Rules and Regulations, Volume II, Chapter 5. Standard OWTS typically have good soil depth to groundwater (5 feet or greater), good soil depth to an impermeable layer (3 feet or greater) and can satisfy all the surface suitability criteria and setbacks. As with all OWTS installations, standard sewage disposal systems must consist of primary treatment through a 2-compartment septic tank. Septic tank design, capacity, construction, and access risers are specified in the Rules and Regulations, Volume II, Chapter 4B and are discussed under general design considerations, above. The Rules and Regulations utilize a prescriptive design for standard sewage disposal systems, and these systems are designed by the staff Environmental Health Specialist.

As specified in the Rules and Regulations, Volume II, Chapter 4.C, a standard disposal trenches may consist of a rock leach trench or gravel-less leaching chambers. A disposal trench consists of a shallow, level, rectangular soil excavation, leach rock, perforated distribution pipe, barrier material and soil cover. The excavation bottom area and sidewall to a depth of eighteen (18") inches is used to calculate the absorptive area of this type of system. The maximum seepage area is five (5) square feet per lineal foot of trench. At least six (6") inches of clean-washed drainage rock ($\frac{3}{4}$ " to 2½" diameter) are placed beneath a four-inch diameter perforated distribution pipe, and at least (2") inches cover the pipe, giving a total rock depth of not less than twelve (12") inches. Disposal trenches shall be constructed at a minimum of ten (10') feet center to center. The bottom and sides of the bed or trench excavation are to be raked to eliminate any smearing that has occurred during excavation. Each perforated pipe is fitted with an end cap or plug, all lines are installed level, and distribution to each trench is provided via

connection to a distribution box or crossover pipe. Maximum length of each line is 100 feet. The entire leach trench area is covered with untreated paper, Geotextile fabric or other suitable material to prevent cover soils from penetrating the leach rock. A minimum of twelve (12") inches of soil is used to cover the bed in a manner which will facilitate surface water run-off. When installed on sloping ground, the bed should be configured and installed so as to parallel slope contour.

A gravel-less leaching system consists of prefabricated interlocking effluent receiving chambers installed in a shallow, level, rectangular trench excavation. All gravel-less chambers must be UPC/IAPMO approved and certified. The bottom chamber area and height of louvered sidewall area is used to calculate the absorptive area of this type of system. The bottom and sides of the bed or trench excavation are to be raked to eliminate any smearing that has occurred during excavation. All large rocks and debris are to be removed from the excavation prior to installation of the leaching chambers. The first and last leaching chambers are to be fitted with an end plate, all chambers are installed level, and distribution to each trench is provided via connection to a distribution box or crossover pipe. Maximum length of each leaching chamber system is 100 feet. A minimum of twelve (12") inches of soil is used to cover a leaching chamber system in a manner which will facilitate surface water run-off. All gravel-less leaching chamber systems are to be installed per the manufacturer's design.

Engineered Sewage Disposal System Design

The specifications for an engineered OWTS are found in the Rules and Regulations, Volume II, Chapter 6. As with all OWTS installations, engineered sewage disposal systems must consist of primary treatment through a 2-compartment septic tank. Septic tank design, capacity, construction, and access risers are specified in the Rules and Regulations, Volume II, Chapter 4.B, and are discussed under general design considerations, above. The Rules and Regulations require plans for an engineered OWTS be submitted by a California Registered Civil Engineer, Geologist, Environmental Health Specialist, or Soil Scientist serving as the qualified professional for the project. Plans are then reviewed and approved by the staff Environmental Health Specialist as part of the permit process.

Sites requiring an engineered OWTS typically are not suitable for a standard system due to one or more limiting design factors. Areas where the seasonal high groundwater table is closer than thirty (30") inches below proposed disposal trench bottom or where an impermeable layer is closer than thirty six (36") inches below proposed disposal trench bottom are not suitable for standard sewage disposal systems. Such areas may be suitable for an engineered sewage disposal system.

The Rules and Regulations allow five types of OWTS depending on specific site and soil conditions. All engineered OWTS are addressed in the Rules and Regulations, Volume II, Chapter 6. The five types of engineered OWTS allowed include:

At-grade bed systems. Elevated bed systems may be applied in areas where vertical separation to groundwater and/or an impermeable layer is not acceptable for a standard OWTS. The at-grade bed contains a pressure distribution cell consisting of rock aggregate and a distribution network on top of the ground (at grade). The soil directly below the distribution cell is layered with sand (6" typical) and ripped to a depth of six (6") inches to twelve (12") inches. The sand enters the ripped areas to create a pathway for effluent to infiltrate the soil. The required depth of soil below bed to a restrictive layer is thirty six (36") inches for a small lot with community water or twenty four (24") inches for lots five (5) acres or larger with a well. The vertical separation to seasonal groundwater is thirty (30") inches below bottom of bed.

Mound systems. Elevated mound systems may be applied in areas where vertical separation to groundwater and/or an impermeable layer is not acceptable for standard system. The mound system can sometimes be used in areas where the soil conditions are not acceptable for an at-grade bed system. The mound utilizes twenty four (24") inches of medium washed sand to treat the effluent before it is dispersed into the soil. See the Rules and Regulations, Volume I, Chapter 1.B.63 for sand specifications. The mound is similar to the at-grade bed in that the pressure distribution cell is placed on top of ripped soil at the ground surface. The required depth of soil below bed to a restrictive layer is twenty four (24") inches and the vertical separation to seasonal groundwater is eighteen (18") inches below bottom of bed.

Gravel filled pressure dosed systems. These systems are designed to uniformly distribute septic tank effluent under pressure to shallow disposal trenches. The disposal trenches can utilize rock aggregate or gravel-less chambers. A minim of six (6") inches of filter material (rock aggregate) is required below pressure distribution lateral. The required depth of soil below trench bottom to a restrictive layer is thirty (30") inches for a small lot with community water or twenty four (24") inches for lots five (5) acres or larger with a well.

Sand filled pressure dosed systems. These systems are designed to uniformly distribute septic tank effluent under pressure to disposal trenches that have a minimum of twelve (12") inches of medium sand below the distribution lateral. See the Rules and Regulations, Volume I, Chapter 1.B.63 for sand specifications. The medium washed sand is used to treat the effluent before it is dispersed into a permeable rock layer. The required depth of permeable material (typically fractured rock) below trench bottom to a restrictive layer is twenty four (24") inches and the vertical separation to seasonal groundwater is thirty (30") inches below bottom of bed.

Advanced treatment systems with pressure distribution trenches. Recognized Advanced Treatment Systems include Intermittent Sand or other Supplemental Treatment System as approved by the CCOWD. Other Advanced Treatment Systems may include, but are not limited to, aerobic systems as considered by the COWD on a case by case basis.

Supplemental Treatment Systems that have been approved by state or nationally recognized testing agencies (NSF Standard 40 or equivalent) may be approved if they have been found to adequately protect surface water and groundwater quality and preclude health hazards and nuisances. All supplemental treatment units shall meet a 50 percent reduction in total nitrogen when comparing the 30-day average influent to the 30-day average effluent. Supplemental treatment units designed to perform disinfection shall provide sufficient pretreatment of wastewater so that effluent does not exceed a 30-day average Total Suspended Solids (TSS) of 30 mg/L and shall further achieve an effluent fecal coliform bacteria concentration less than or equal to 200 Most Probable Number (MPN) per 100 milliliters. An Advanced Treatment System with Pressure Distribution Trenches" includes gravel filled pressure distribution systems and recognized Advanced Treatment Systems designed to filter and biologically treat septic tank effluent for purposes of reducing constituents commonly found in effluent as defined in the Rules and Regulations.

Advanced Treatment Systems are used in conjunction with disposal fields where site and soil conditions are not adequate for standard or typical engineered systems. These conditions include, but are not limited to, slowly permeable soils, inadequate depth of effective soil below trench bottom, and/or inadequate depth to groundwater below trench bottom. Supplemental Treatment Systems that have been approved by state or nationally recognized testing agencies (NSF Standard 40 or equivalent) may be approved if they have been found to adequately protect surface water and groundwater quality and preclude health hazards and nuisances. Allowable types of Supplemental Treatment Systems are as follows: textile filters, intermittent sand filters, recirculating sand filters and aerobic treatment units. Specific Supplemental Treatment Systems are subject to county approval.

The required depth of soil below trench bottom to a restrictive layer is twelve (12") inches for a small lot with community water or six (6") inches for lots five (5) acres or larger with a well. The vertical separation to seasonal groundwater is twenty four (24") inches below bottom of trench.

Due to the complexity of advanced treatment systems, proper operation and maintenance of these systems is essential. An Operation and Maintenance Manual must be developed by the system designer and/or manufacturer and provided to the applicant and CCOWD at time of plan submittal. This Manual must include diagrams of system components, descriptions of normal system functions, schedules for routine annual maintenance, descriptions on how to correct common operational problems and other items necessary to ensure proper system function.

All advanced treatment units shall be installed according to the manufacturer's approved design and specifications under the direction of a qualified professional and must satisfy all the requirements of the Rules and Regulations.

OWTS CONSTRUCTION

Copies of the installation permit and approved plans for the OWTS are issued to the applicant (owner) or the owner's authorized representative, (typically a contractor). This permit is written authorization that construction can begin.

For a standard OWTS, CCOWD staff (registered environmental health specialist) function as the qualified professional and is available for questions or consultation if needed. Construction activities must be coordinated through the CCOWD and notification must be made to the COWD when the required inspections are needed. CCOWD staff are required to perform and open trench inspection and a final inspection, as stated earlier in the document. During the final inspection CCOWD staff will prepare an as-built drawing of the system construction and location for the permanent records.

For an engineered or advanced treatment system, all construction activities must be coordinated through the design consultant and CCOWD staff. The design consultant is required to oversee the installation, operation of pumps, controls, timers, manuals and other operational parameters of the system. CCOWD and the design consultant will conduct the required construction inspections and witness system operations as necessary prior to final approval. Before final approval, the CCOWD must receive a copy of a letter of certification from the design consultant stating that OWTS construction was observed by a qualified professional and installed in substantial conformance with the approved plans.

OPERATION AND MAINTENANCE

The Calaveras County Onsite Wastewater Department encourages proper OWTS operation and maintenance through homeowner education. Owners of standard systems can protect themselves from premature OWTS failure by following simple daily care, routine maintenance, and by knowing what to look for as early signs of trouble. The Septic Systems for Homeowners guide and Care of Septic Tank guide are helpful sources available at the onsite wastewater website <http://envhmgmt.calaverasgov.us/EnvironmentalHealth/OnSiteWastewater.aspx>. The website will also include contact information, highlights of the Rules and Regulations, variance forms, fee schedule, plot plan requirements, and permit requirements. Also, property owners, realtors, contractors and others can contact CCOWD to access the permanent records of OWTS design, construction and locations during regular business hours.

All engineered OWTS designs shall include provisions for system monitoring (disposal trench observation pipes, groundwater monitoring wells, etc.) sufficient to provide information on system operation. System specific homeowner operation and maintenance guidelines shall be submitted. These guidelines shall cite homeowner procedures to ensure maintenance, repair, or replacement of critical items within 48 hours following OWTS failure.

Septic Tank Maintenance and Pumping

As discussed in the education and outreach section, the Septic Systems for Homeowners guide and Care of Septic Tank guide are helpful sources available at the onsite wastewater website <http://envhmgmt.calaverasgov.us/EnvironmentalHealth/OnSiteWastewater.aspx> to educate them on the care and maintenance of their system. All OWTS owners are encouraged to inspect their septic tank every 3-5 years, depending on use, and pump as needed. Since Calaveras County has a large number of seasonal homes with varying degrees of occupancy which may extend the time between needed septic tank pumping, countywide mandatory pumping intervals are not uniform or applicable.

In addition to voluntary inspections, many property transactions also require OWTS inspection. These are typically required by the buyer, the buyer's agent, or the buyer's lender. While not regulatory and not enforced by CCOWD, these inspections are effective in further encouraging OWTS education, maintenance and pumping.

Septic tank maintenance is performed by registered professionals as described in the next section. CCOWD requires that all OWTS inspections are conducted by California Onsite Water Association (COWA) or National Association of Wastewater Workers (NAWT) certified inspectors (OWTS inspector). A repair permit will not be issued unless an inspection report is received from an OWTS inspector or a qualified professional. A homeowner may be issued a repair permit without an inspection from an OWTS inspector or qualified professional, if they wish to repair their OWTS. Homeowners are encouraged to use the COWA/NAWT inspection checklist to help ensure consistent inspections and it walks the homeowner through the important points of proper OWTS performance.

Septage Receiving and Disposal

The Calaveras County Environmental Health Department (EHD) registers businesses and individuals who perform septic tank and chemical toilet pumping /cleaning in Calaveras County per Section 117400 et seq. of the California Health and Safety Code. Their trucks and equipment are subject to annual inspection by EHD. Also, per California Health and Safety

Code, each operation is required to submit monthly septage reports showing the locations from where septage is pumped and where it is disposed.

Approximately 2.0 to 2.5 million gallons of septage per year is collected within Calaveras County. The majority of the septage (96%) is generated through the pumping of residential septic tanks with about 1% from local commercial businesses. The final 3% of septage is generated through the pumping of chemical or vault toilets located at remote facilities within the county and construction sites. Environmental Health has not received any reports of industrial septage being generated within the County.

All of the septage generated in Calaveras County is transported out of County for disposal. The bulk of the septage is taken to disposal facilities in neighboring counties (Tuolumne and Amador). Some septage does go to disposal facilities in the central valley and bay area. Since all of the septage is disposed of at locations that are out of County, I cannot anticipate if there will be a volume shortage at disposal locations. All of the local utilities, within Calaveras County, that provide sewer collection and disposal are strictly for those residents and commercial facilities that are connected. All of these facilities do have available volume for connections within their collection areas. We do not anticipate that the local utilities will allow septic pumpers to dispose of septage at their facilities, since they never have in the past.

WATER QUALITY ASSESSMENT

The goal of the water quality assessment is to determine the general operational status of OWTS, to evaluate the impact of OWTS discharges, and to assess the extent to which groundwater and local surface water may be adversely impacted. The assessment will include review of complaints, variances, failures, and any information resulting from field inspections as well as monitoring and analysis of water quality data.

Assessment Considerations

As stated in Section 9.3.2 of the OWTS Policy, the focus of the assessment should be areas with characteristics listed under section 9.1. Some of these considerations currently do not apply to Calaveras County. For instance, Calaveras County does not have any high quality waters or other environmental conditions requiring enhanced protection (9.1.2), nor does it have surface water listed as impaired for nitrogen or pathogens (9.1.8). Similarly, there are no known geographic areas with multiple, existing OWTS predating septic tank and disposal field standards, such as cesspools (9.1.11). Furthermore, there are no known geographic areas susceptible to hydraulic mounding, organic or nitrogen loading, or with insufficient replacement area in case of a failure (9.1.10).

Historic updates and changes to County Code and the Rules and Regulations have helped to successfully mitigate potential pollution and nuisance conditions of improper onsite wastewater disposal. Calaveras County conducted a major overhaul to the County Code and the Rules and Regulations in 1992. It contained provisions for groundwater protection and density limits for creating new parcels dependent on onsite waste disposal. Tracing back specifics of the onsite disposal ordinance was more difficult, but the ordinance that was in effect in 1992, contained many specific protective measures still relevant today. These include requirements for three (3) feet separation to fractured bedrock or impermeable strata, maximum percolation rates of 120 minutes per inch, and a prohibition on use of cesspools and privies for sewage disposal, as just a few examples.

Collectively, these regulating documents have largely prevented high concentrations of OWTS being installed or utilized in areas having various characteristics of concern contained in Section 9.1 of the OWTS Policy. Specifically, no concentrated areas with dispersal systems located in an area with fractured bedrock without engineered or advanced treatment OWTS (9.1.5), dispersal system located in an area with poorly drained soils (9.1.6), and vulnerability to pollution due to hydrogeological conditions (9.1.1) are currently known throughout Calaveras County.

No specific areas of the county suggest the need for localized monitoring and assessment at this time. Drinking water data set is a routinely collected from existing and new water wells. This data is representative of groundwater conditions throughout the county which provides OWTS performance information. Also, data available from the statewide GeoTracker GAMA (groundwater ambient monitoring and assessment) can be utilized.

GeoTracker GAMA

The mission of the GeoTracker GAMA program is to provide data, information, and tools to enable the public and decision makers to better assess groundwater quality and quantity. The GeoTracker GAMA groundwater information system integrates and displays water quality data from various sources on an interactive Google-based map.

Data sources currently include some limited public and private sources, and may eventually include public drinking water data, monitoring data from waste discharge permits issued by the Regional Board, receiving water sampling related to NPDES permits, data collected in California Water Quality Assessment Database and other sources. Analytical tools and reporting features can help CCOWD assess groundwater quality and identify potential groundwater issues throughout Calaveras County. CCOWD will utilize GeoTracker GAMA to the extent practical. It is anticipated that GeoTracker GAMA-secure may eventually cover Sections 9.3.2.3, and Sections 9.3.2.6 through 9.3.2.9 of the OWTS Policy.

Drinking Water Data Sources

Drinking water data is collected as part of regulatory compliance with the Public Drinking Water Program. The Calaveras County Environmental Health Department (EHD) is certified by the State Water Resources Control Board as a Local Primacy Agency, with delegated authority to implement the small public drinking water regulatory program for systems serving 15 or more but less than 200 connections. County-regulated systems utilize groundwater exclusively and all are required to perform routine water quality monitoring and reporting as a condition of their Permit to Operate. The inventory of small public drinking water systems includes nearly 46 of these systems across the county. Some of these systems have multiple well sources, providing nearly 150 different data points.

Data from larger public systems serving 200 or more connections may also provide data. Larger systems utilize a combination of surface and groundwater, and many of these communities are served by sanitary sewer, so some of this data will be more beneficial in assessing OWTS performance than others. Nonetheless, these systems can provide useful data.

All told, drinking water systems provide more than 150 data points across the county to assess OWTS potential impacts to groundwater. At a minimum, this data includes bacteria (total coliform and, when present, either E.coli or fecal coliform) and nitrates. For some of these systems, general physical, inorganic chemicals, radiological, volatile organic chemicals, synthetic organic chemicals and lead and copper data may also be available. The frequency of data collection will vary by system type, and some data is only collected once while other data may be collected periodically. To the extent that this additional drinking water data helps assess OWTS performance.

Pathogen Monitoring

Drinking water systems routinely monitor for pathogens using total coliform bacteria as a general indicator of drinking water contamination. Samples testing positive for total coliform are also analyzed for fecal coliform or E coli depending on the laboratory method used. All positive bacteria analysis results are sent immediately to EHD for investigation. Results of the investigation are documented and kept in the appropriate water system file and are available for review. Monthly summary reports of all bacteriological analyses are also sent to EHD to help ensure sampling and testing is completed as required, and for historical archive.

Nitrate Monitoring

Most of the drinking water wells are monitored annually for nitrate concentrations. The nitrate results are sent by the analytical laboratory to the Water Resources drinking water database entitled “Water Quality Inquiry Replacement (WQIR)” in EDF format. The data is assigned to a unique source and water system specific identification number for archive. Once in WQIR, the nitrate analysis data is available by download or inquiry. The database can be queried in a number of ways, including by system, contaminant, and concentration. Results exceeding the nitrate Maximum Contaminate Level (MCL) in drinking water generate an automatic notification to EHD for immediate action. The nitrate data can be evaluated for trends in concentration and changes over time, by geographical location, and in relation to OWTS density.

Annual Reporting

CCOWD will submit an annual report to the Central Valley Regional Water Quality Control Board (CVRWQCB) summarizing the number and location of complaints pertaining to OWTS operation and how these issues were resolved. The number, location and description of permits issued for new and replacement OWTS and registrations issued for the septic tank cleaning registration. The annual report will be submitted to the CVRWQCB on or before February 1st in accordance with Section 9.3.3 of the OWTS Policy.

Nitrate data submitted by analytical laboratories on behalf of the water systems is submitted to the SWR WQIR database in EDF format. While Section 9.3.3 of the OWTS Policy states that all groundwater monitoring data generated by the local agency shall be submitted in EDF format for inclusion into the Geotracker database, CCOWD does not have the staffing or resources to extract data from one SWR database and re-enter it into a different SWR database.

Alternatively, CCOWD recommends SWR access the data directly in the SDWIS, or develop data transfer protocols for SWR staff to move the data from SDWIS to Geotracker as needed.

Five Year Analysis and Reporting

CCOWD will perform an evaluation of the Water Quality Assessment Program every five (5) years per Section 9.3.3 of the OWTS Policy. The 5 year analysis will assess whether water quality is being impacted by OWTS and will identify any changes in the Calaveras County LAMP that will be undertaken to address the identified impacts.

CCOWD/EHD has developed a GIS layer of all drinking water system well locations. This layer can then be compared with other existing GIS layers such as parcel boundaries and dwelling locations for spatial representation and analysis of these data. This will allow the nitrate data to be evaluated for trends in concentration and changes over time, by geographical location,

and in relation to OWTS density. The spatial representations will also be useful for gap analysis and identifying areas needing additional groundwater monitoring and assessment.

Because CCOWD currently does not have staffing or resources to perform the 5 year analysis of this groundwater assessment data, CCOWD will peruse possibilities for grant funding. If grant funding is not available, Calaveras County will need to find another way to secure staffing and resources prior to completing its first 5-year assessment, which is anticipated to be due to SWR in 2023.

Appendix 1: County Code Chapter 13.12

Chapter 13.12 - SEWAGE DISPOSAL—UNINCORPORATED AREAS*

Sections:

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- [13.12.050 - Sewer wells, cesspools and privies.](#)
- [13.12.060 - Sewage disposal—Permit—Required.](#)
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- [13.12.090 - Sewage disposal system—Alterations/repairs.](#)
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13.12.010 - Definitions.

For the purpose of this chapter, words and phrases are defined as follows unless it is apparent from their context that a different meaning is intended:

"Agency" means the Calaveras County environmental management agency as established under Chapter 2.22 of County Code.

"Agency administrator" means the environmental management agency administrator, or any designated or authorized agent thereof. For purposes of this chapter, agency administrator may also be used interchangeably with director of environmental health.

"Application" means an application for a soil profile, system installation, tank replacement, site evaluation, land development or other activity as carried out under this chapter. An application does not constitute a permit.

"Board of supervisors" means the Calaveras County board of supervisors.

"Cesspool" means an excavation into the earth which is used for the reception of sewage or drainage from plumbing fixtures, which does not have watertight walls and bottom.

"Character of use" means the use which a sewage disposal system will service, i.e., single-family dwelling, retail store, restaurant, etc.

"Construct" means the act of construction.

"Construction" means the installation of a new system or part thereof, or the alteration or repair of an existing system.

"Consultant" means a registered civil engineer, registered environmental health specialist, or a registered geologist with specialty certification in engineering geology, as recognized by the state of California Department of Consumer Affairs. Registered geologists without the specialty certification in engineering geology may conduct soils investigations but may not perform designs or submit plans for sewage disposal system construction.

"Drainage system" means all the piping within public or private premises which conveys sewage, or other liquid wastes to a point of disposal, but shall not include the mains or laterals of a public sewer system.

"Engineered system" means an on-site sewage system that utilizes the components of a standard system, but that modifies or supplements those components with a special design or designs, such as sand filters, pumps, pressure distribution, interceptor drains, etc.

"Health officer" means the health officer of the county or any designated or authorized agent thereof.

"On-site sewage department" means the department directly responsible for carrying out the provisions of this chapter.

"Permit" means the formal written approval of an application.

"Privy" means a structure used as a toilet under a part or all of which is an unlined pit intended for the reception of human waste.

"Public sanitary sewer" means any sewage disposal system operated and maintained by any municipality, district or public corporation, organized and existing under and by the virtue of the laws of the state for the benefit of the public.

"Septic tank" means a watertight receptacle which receives the discharge of a drainage system or part thereof, designed and constructed so as to retain solids, digest organic matter through a period of detention, and allow the liquids to discharge to a subsequent treatment unit or to a sewage disposal system.

"Sewage" means any liquid waste or water-carried solid waste containing organic or inorganic matter in suspension or solution, including kitchen, bath and laundry wastes from residences, buildings, industrial establishments, or other places, together with such groundwater infiltration, surface water or industrial waste as may be present.

"Sewage disposal permit" means a written permit issued by the agency administrator permitting the construction of an individual sewage disposal system under this chapter.

"Sewage disposal system" means a system for disposal of sewage other than a public or community system, including, but not limited to, septic tank-soil absorption systems and chemical toilets.

"Sewer well" means and includes all of the following:

1. Any hole dug or drilled into the ground and intended for use as a water supply, which has been abandoned and is being used for the disposal of sewage.
2. Any hole dug or drilled into the ground, used or intended to be used, for the disposal of sewage and extending to or into a subterranean water-bearing stratum that is used, or may be used, or is suitable for a source of water supply for domestic purposes.

(Ord. 2921 (part), 2007: Ord. 2250 § 1 Exh. A(part), 1992: Ord. 1922 § 2, 1987; Ord. 1424 § 1, 1981; Ord. 1285 § 1, 1980).

13.12.020 - Application.

Except as otherwise expressly provided, this chapter shall apply to all territory lying within the limits of the county, excluding any territory lying within an incorporated city.

(Ord. 2921 (part), 2007: Ord. 2250 § 1 Exh. A(part), 1992: Ord. 1285 § 2, 1980).

13.12.030 - Prohibited acts.

It is unlawful to maintain or use any residence, place of business or other building or place where persons reside, congregate, or are employed which is not provided with a means for the disposal of sewage complying with this chapter, the rules and regulations of the agency administrator promulgated under this chapter, and the California Health and Safety Code as enforced by the health officer.

(Ord. 2921 (part), 2007: Ord. 2250 § 1 Exh. A(part), 1992: Ord. 1285 § 3, 1980).

13.12.040 - Sewer connection.

If the drainage system of a building is within two hundred feet of a public sanitary sewer, and the owner of the building may lawfully connect to the public sanitary sewer, such connection must be made in the most direct manner possible and in accordance with the rules and regulations of the operator of the public sanitary sewer.

(Ord. 2921 (part), 2007: Ord. 2250 § 1 Exh. A(part), 1992: Ord. 1285 § 4, 1980).

13.12.050 - Sewer wells, cesspools and privies.

All sewer wells, cesspools or privies are public nuisances and it is a violation of this chapter to construct, maintain or operate a sewer well, cesspool or privy.

(Ord. 2921 (part), 2007: Ord. 2250 § 1 Exh. A(part), 1992: Ord. 1285 § 7, 1980).

13.12.060 - Sewage disposal—Permit—Required.

It is unlawful for any person to construct or operate any septic tank, sewage treatment works, sewer pipes or conduits, drainage systems, or other means for the disposal, treatment or discharge of sewage without first obtaining a sewage disposal permit therefor from the agency

administrator.

(Ord. 2921 (part), 2007: Ord. 2250 § 1 Exh. A(part), 1992: Ord. 1285 § 5, 1980).

13.12.065 - Sewage disposal—Permit processing fees.

The board of supervisors establishes the following fees to take effect on the twenty-eighth day of July, 1993:

- A. Monitoring: seven dollars per new installation permit;
- B. Recording: five dollars per new installation permit.

(Ord. 2921 (part), 2007: Ord. 2324 § 2, 1993).

13.12.070 - Sewage disposal—Permit—Applications.

A. Applications for sewage disposal permits shall be filed with the Calaveras County environmental management agency/on-site sewage department.

B. Each such application shall contain a detailed plan (scaled plot plan) and description of the proposed sewage disposal system and construction thereof. The application shall also contain the character of use of the proposed sewage disposal system and such other information in such form as to comply with the changes in the law.

C. Applications for septic tanks and other subsurface drainage systems shall, in addition to the information required in this section, set forth the type and depth of soils. Plot plans shall identify the distance from the existing or proposed septic system to wells, springs and other waters used for domestic purposes from the proposed installation site.

(Ord. 2921 (part), 2007: Ord. 2250 § 1 Exh. A(part), 1992: Ord. 1285 § 9, 1980).

13.12.075 - Sewage disposal—Permits—Application approval.

A. The application, and any plans, specifications, or other data, filed by an applicant shall be reviewed by the agency administrator. When the application is found to conform with the requirements of this chapter and any other pertinent laws, ordinances, rules or regulations, the application and any required plans shall be stamped "APPROVED."

B. Applications and plans for which no permit is issued within three hundred sixty-five days following the date of approval shall expire by limitation, become null and void, and the application, plans, specifications, or other data submitted for review may thereafter be destroyed by the agency administrator.

C. The agency administrator may administratively extend the time for action by the applicant for a period not to exceed one hundred eighty days upon written request by the applicant.

D. No application shall be extended more than once. In order to review action on an application after expiration, the applicant shall resubmit plans and pay a new plan review fee.

(Ord. 2921 (part), 2007: Ord. 2250 § 1 Exh. A(part), 1992: Ord. 1922 § 3, 1987).

13.12.080 - Sewage disposal permits—Issuance.

A. The agency administrator shall not approve or issue a sewage disposal permit for the

construction of any septic tank, sewage treatment works, sewer pipes or conduits or any other means for the disposal, treatment, or the discharge of sewage unless:

1. The means or proposed means for the disposal, treatment or discharge of sewage will not permit the escape of any noxious odors, vapors, or gases;
2. The means or proposed means for the disposal, treatment or discharge of sewage will not permit the ingress and/or egress of flies, rodents or other insects or animals;
3. The means or proposed means for the disposal, treatment or discharge of sewage will not permit the sewage to empty, flow, seep, drain or otherwise enter and pollute any stream, river, lake or other waters of the state, groundwater or any other waters which may be used or suitable for use for domestic or agricultural purposes;
4. The means or proposed means for the disposal, treatment or discharge of sewage shall not be offensive, injurious or dangerous to health;
5. The means or proposed means for the disposal, treatment or discharge of sewage conforms to the rules and regulations of the county for the disposal and treatment of sewage.

B. When the agency administrator issues the permit where plans are required, he or she shall endorse in writing or stamp the plans and specifications "APPROVED." Such approved plans and specifications shall not be changed, modified or altered without authorization from the agency administrator, and all work shall be done in accordance with the approved plans.

C. One set of approved plans, specifications and computations shall be retained by the agency administrator for county records; and one set shall be kept on the site of the work by the permittee at all times during which the work authorized thereby is in progress.

(Ord. 2921 (part), 2007: Ord. 2250 § 1 Exh. A(part), 1992: Ord. 1922 § 7, 1987: Ord. 1285 § 8, 1980).

13.12.085 - Sewage disposal—Permit—Expiration.

A. Every permit shall be valid for a period of three hundred sixty-five days to complete work authorized by the permit.

B. Any permittee holding an unexpired permit may apply for an extension of the time within which he may commence work under that permit or complete work under that permit.

C. Unless issued prior to August 7, 2007, no permit shall be extended more than once. Permits may be extended more than once. The agency administrator may extend the time for action by the permittee for a period not to exceed three hundred sixty-five days upon written request by the permittee. Such request for extension shall be subject to conformance with regulations in force at the time of extension request. In addition, the permittee shall pay any incremental increase in permit fees beyond those already paid.

D. In order to renew work on a permit after expiration, the permittee shall pay a new permit fee, provided the plans conform with current regulations; and provided further, that the permit has not been expired for a period of more than three hundred sixty-five days.

(Ord. 2921 (part), 2007: Ord. 2250 § 1 Exh. A(part), 1992: Ord. 1922 § 4, 1987).

13.12.090 - Sewage disposal system—Alterations/repairs.

The agency administrator may order changes to an existing sewage disposal system's method and location for the disposal, treatment, or discharge of sewage to prevent the system from becoming, or being, a nuisance or hazard to the health of humans or animals. Such orders shall designate a reasonable period of time within which the stated changes must be made.

(Ord. 2921 (part), 2007: Ord. 2250 § 1 Exh. A(part), 1992: Ord. 1285 § 10, 1980).

13.12.100 - Sewage disposal system—Regulations.

A. A sewage disposal permit must be obtained from the agency administrator prior to the construction of a sewage disposal system.

B. To assure that sewage disposal systems are not injurious, harmful to water quality, dangerous to health, or nuisances, the board of supervisors shall make and establish rules and regulations, which may be amended from time to time, regarding the design, size, constituent materials, location, and manner of construction of sewage disposal systems, in accordance with section 13.12.150 of this chapter.

C. Every sewage disposal system shall be constructed in strict compliance with such rules and regulations and with the terms and conditions of the sewage disposal permit for the construction thereof.

(Ord. 2921 (part), 2007: Ord. 2250 § 1 Exh. A(part), 1992: Ord. 1285 § 6, 1980).

13.12.110 - Inspections.

A. The agency administrator is authorized to make such inspections as are necessary to determine proper installation and operation of sewage disposal systems in compliance with this chapter and any rules and regulations promulgated under this chapter.

B. Owners or occupants of real property shall give the agency administrator access to their property at reasonable times for the purpose of making such inspections as are necessary to determine compliance with this chapter.

(Ord. 2921 (part), 2007: Ord. 2250 § 1 Exh. A(part), 1992: Ord. 1285 § 11, 1980).

13.12.120 - Inspection prior to use.

No work done under any sewage disposal permit shall be covered, concealed, or put into use before it has been inspected and approved by the agency administrator. For those installations occurring prior to the adoption of Ordinance No. 1285 (May 1980), documentation of a final building permit presumes a final septic permit.

(Ord. 2921 (part), 2007: Ord. 2250 § 1 Exh. A(part), 1992: Ord. 1285 § 12, 1980).

13.12.125 - Final approval—Prerequisite.

A. The sewage disposal system shall be given an open-trench inspection by the agency administrator before any work other than excavation is commenced on the parcel. "Work," as used in this section, includes construction of any structure with internal plumbing, including the construction of a foundation for such a structure, but excluding drilling of a well or the excavation for foundation and driveway.

B. If the agency administrator finds that compliance with subsection A of this section would be detrimental to the ultimate operation of the sewage disposal system, a variance may be granted to allow construction for a structure prior to open-trench inspection.

(Ord. 2921 (part), 2007: Ord. 2250 § 1 Exh. A(part), 1992: Ord. 1450 § 3, 1981).

13.12.130 - Special permits.

A. Contrary provisions of this chapter notwithstanding, the agency administrator may grant special sewage disposal permits for limited periods of time if the application of this chapter or any rules and regulations promulgated under it would, during such limited periods of time, be impractical or unnecessary, and if the granting of such special permit would be consonant with the purpose of this chapter.

B. In issuing such special sewage disposal permits, the agency administrator may prescribe such conditions as are necessary to protect the public health, safety or the environment.

(Ord. 2921 (part), 2007: Ord. 2250 § 1 Exh. A(part), 1992: Ord. 1285 § 13, 1980).

13.12.140 - Administrative variances.

A. The agency administrator may grant an administrative variance from any standard set forth in this chapter where written substantial evidence is submitted by a consultant as defined in this chapter that an unusual circumstance or unnecessary hardship would result from the application of the standard. Under no circumstance shall the granting of a variance create a hazardous condition or endanger public health, safety or the environment.

B. Applications for a variance shall be submitted to the agency administrator along with written substantial evidence supporting the request for a variance and any applicable fees. The agency administrator shall give notice to adjacent property owners of any variance granted. The agency administrator shall issue findings with respect to its determination of the request for a variance.

C. Prior to final approval of any such system, the designer thereof shall:

1. Submit to the agency administrator a written verification, based on field inspection, that the system has been installed as shown on the plans; and
2. Submit a scaled as-built drawing depicting tight lines (sanitary building sewage disposal system), septic tank and associated appurtenances and disposal field.

(Ord. 2921 (part), 2007: Ord. 2250 § 1 Exh. A(part), 1992: Ord. 1285 § 14, 1980).

13.12.150 - Provisions—Revision—Amendments.

A. The board of supervisors may adopt, amend and repeal rules and regulations to further define the provisions of this chapter and to assist in carrying out the provisions of it. Such rules and regulations must be consistent with this chapter, and may only be adopted, amended or repealed after a public hearing held by the board of supervisors.

B. Public notice of any such hearing shall be given at least seven days in advance thereof in a newspaper of general circulation published in the county. Such notice shall include the time and place of hearing, information concerning the proposed changes and identification of where a copy of the complete text of the proposed rules and regulations may be obtained.

(Ord. 2921 (part), 2007: Ord. 2250 § 1 Exh. A(part), 1992: Ord. 1285 § 15, 1980).

13.12.160 - Sewage disposal permit—Appeal of denial.

A. The agency administrator's decision on an application for a permit, or a request for variance, may be appealed by the applicant or any interested person to the board of supervisors whose decision shall be final. Appeals shall be filed with the clerk of the board within fifteen calendar days after notification by the agency administrator of the act claimed to be contrary to law, and shall specifically state the grounds on which the appeal is based. The clerk of the board shall set an appeal for hearing within fifteen days or as soon thereafter as can be agendized for review. The clerk of the board shall also notify the appellant and the agency administrator in writing, of the time so set at least five days prior to the hearing.

B. After such hearing, the board may reverse, wholly or partly, or may modify the order or determination appealed from.

(Ord. 2921 (part), 2007: Ord. 2250 § 1 Exh. A(part), 1992: Ord. 1727 § 1, 1985: Ord. 1285 § 16, 1980).

13.12.165 - Sewage disposal permit—Suspension or revocation.

A. The agency administrator may, in writing, suspend or revoke a permit issued under the provisions of this chapter whenever the permit is issued in error, or on the basis of incorrect information supplied, or in violation of this chapter or any other ordinance or regulation.

B. The agency administrator may also suspend or revoke a permit issued under the provisions of this chapter when it is found that the system for which the permit is issued degrades water quality or threatens the public health, safety or the environment.

(Ord. 2921 (part), 2007: Ord. 2250 § 1 Exh. A(part), 1992: Ord. 1922 § 5, 1987).

13.12.170 - Enforcement.

The agency administrator is authorized to enforce the provisions of this chapter and the rules and regulations promulgated under it.

(Ord. 2921 (part), 2007: Ord. 2250 § 1 Exh. A(part), 1992: Ord. 1285 § 17, 1980).

13.12.180 - Violation—Penalty.

A. Any person violating the provisions of this chapter or any rules or regulations promulgated under it shall be guilty of a misdemeanor and upon conviction thereof shall be punished by a fine not exceeding five hundred dollars or by imprisonment in the county jail not exceeding six months or by both such fine and imprisonment.

B. Every violation of any provision of this chapter shall constitute a separate offense for each day during which such violation continues.

(Ord. 2921 (part), 2007: Ord. 2250 § 1 Exh. A(part), 1992: Ord. 1285 § 18, 1980).

13.12.190 - Fees.

A. Fees shall be assessed in accordance with the provisions of this chapter and as set forth in the fee schedule adopted by the board of supervisors. Fees shall be paid for plan review,

issuance of a permit, inspections and reinspections and appeals of permit denials.

1. When a plan or other data are submitted by a consultant, a plan review fee shall be paid at the time of submitting plans and other data for review. Where submitted plans are incomplete or changes are required so as to necessitate additional plan review, an additional plan review fee shall be charged.
2. Permit fees shall be paid in addition to any other fees and paid at the time a permit is applied for.
3. An inspection or reinspection fee may be assessed for each inspection or reinspection when such portion of work for which inspection is called is not complete or when corrections called for are not made.

B. Reinspection fees may be assessed when the permit card is not properly posted on the work site, the approved plans are not readily available to the inspector, for failure to provide access on the date for which inspection is requested, or for deviating from plans requiring the approval of the agency administrator.

C. To obtain a reinspection, the applicant shall first pay a reinspection fee. This is not to be interpreted as requiring reinspection fees the first time a job is rejected for failure to comply with the requirements of this code, but as controlling the practice of calling for inspections before a job is ready for such inspection or reinspection.

D. In instances where reinspection fees have been assessed, no additional inspection of the work will be performed until the required fees have been paid.

(Ord. 2921 (part), 2007: Ord. 2250 § 1 Exh. A(part), 1992: Ord. 1922 § 6, 1987).

13.12.200-Annual Reporting.

Annual reports on OWTS program activities shall be provided to the Central Valley Regional Water Quality Control Board. Unless otherwise requested, reports will be submitted within sixty (60) days of the close of the calendar year. Reports will be submitted in tabular format from an Excel spreadsheet and will include:

- Number and location of complaints pertaining to OWTS operation and maintenance, and a summary of how these issues were resolved; and
- Registrations issued as part of the septic tank cleaning registration program (California Health and Safety Code Section 17400 et seq.), with copies of data on septic tank cleaning locations and septage disposal volumes available upon request; and
- Number, location and description of permits issued for new and replacement OWTS, including the regulatory tier under which they were issued.

13.12.210-Permanent Records

All records pertaining to each onsite wastewater treatment systems (OWTS) permitted by the County shall be retained permanently. These records shall be made available for review within 10 working days upon written request by the Regional Water Board. The records for each permit shall reference the Tier under which the permit was issued.

Appendix 2: Calaveras County Rules and Regulations for Onsite Wastewater
Treatment Systems

CALAVERAS COUNTY
RULES AND REGULATIONS
FOR
ONSITE WASTEWATER TREATMENT SYSTEMS

VOLUME I - DEVELOPMENT STANDARDS

RESOLUTION 92-259

AS AMENDED BY

RESOLUTION 93-45, 94-195, 10-147, 12-113, 1834 and 20170314r039.

March 14, 2017

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**CALAVERAS COUNTY
ONSITE WASTEWATER TREATMENT DEPARTMENT**

RULES AND REGULATIONS

FOR

ONSITE WASTEWATER TREATMENT SYSTEMS

VOLUME I - DEVELOPMENT STANDARDS

CHAPTER 1 - GENERAL

A. Purpose

These rules and regulations are adopted pursuant to the most recent ordinance addressing wastewater disposal as adopted by the Calaveras County Board of Supervisors. Contained herein are prescriptive standards for the field evaluation, design and construction of onsite wastewater treatment systems. The purpose of the rules and regulations is for preventing conditions of pollution and nuisance, to preserve the quality of surface and groundwater and to protect the public health and safety of the citizens of Calaveras County. These regulations supersede all previous regulations and written policies and adopts by reference any state mandated law and/or regulation pertaining to design and installation of onsite wastewater treatment systems.

B. Definitions

1. "Absorption Facility" - means a system of perforated piping, alternative distribution units, or other seepage systems used for receiving the flow from septic tanks or other treatment facilities and designed to distribute effluent for oxidation and absorption by the soil within the zone of aeration.
2. "Accessory Dwelling" – means either an attached or detached dwelling unit which provides potential living facilities for one or more persons, and exceeds the permitted density for a parcel by one dwelling unit. Caretakers quarters are included.
3. "Administrative Authority" – means a governmental agency that adopts or enforces regulations and guidelines for the design, construction, or alteration of buildings and facilities. For purposes of these regulations, the administrative authority is the Onsite Wastewater Treatment Department.
4. "Advanced Treatment System/Unit"- means an onsite wastewater treatment system (OWTS) that does not conform to the parameters of a pressure dosed or gravity fed standard system. Advanced Treatment System/Units reduce total dissolved solids (TDS), pathogens and total nitrogen (TN) among other constituents. Advanced Treatment System/Units include, but are not

limited to, intermittent sand filters, textile-based packed bed filters (textile filters), mound systems and aerobic treatment units.

Advanced Treatment as used in these regulations shall have the same meaning as supplemental treatment.

5. "Agency Administrator" - means the Environmental Management Agency Administrator, or any designated or authorized agent thereof. For purposes of these regulations, agency administrator also includes the director of environmental health.

6. "Alteration" - means expansion and/or change in location of an existing Onsite Wastewater Treatment System (OWTS) as defined in these regulations or any part thereof.

7. "Application Area" – means effective seepage area as defined in these regulations.

8. "Application Rate" – means the rate at which effluent is applied to an effective seepage area as expressed in gallons per day per square foot (gpd/ sq. ft.)

9. "Bathroom" – means an area including a basin with one or more of the following: a water-closet, a tub or a shower.

10. "Bedroom" - means a conditioned room used for sleeping and/or any room within a dwelling which could be used as a bedroom or guest room as defined in these regulations.

Offices, studies, sewing rooms, dens, etc. which have a closeable door, or a closet, or direct access to a bathroom are considered bedrooms.

Loft areas as defined in these regulations are considered bedrooms.

For the purpose of these regulations, the Agency Administrator shall have authority in disputes arising over the designation of a bedroom and may consider bedroom exemptions on a case by case basis.

11. "Clayey Soil" - means mineral soil that has a soil texture that is comprised of forty (40) percent clay and not more than forty-five (45) percent sand or forty (40) percent silt particles. As a soil particle, clay consists of individual rock or mineral particles in soils having diameters <0.002 mm in diameter. Clayey soil typically shrinks and develops wide cracks when dry and swells and shears when rewet forming slicken-sides and wedge shaped structure. Clayey soil is very hard or extremely hard when dry, very firm when moist, and very sticky and very plastic when wet.

12. "Clay pan" - means a dense, compact clay layer in the subsoil. Clay pan has greater clay content than the overlying soil horizon from which it is separated by an abrupt boundary. Clay pans are hard when dry and very sticky and very plastic when wet. Clay pans impede movement of water and air and growth of plant roots.

13. "Commercial Facility" - means any structure or building, or any portion thereof, other than a single family dwelling, either zoned or used for commercial purposes.
14. "Community Wastewater Delivery System" means a public wastewater delivery system or sanitary sewer as defined in these regulations.
15. "Construction" - means construction, repair, alteration or relocation of an OWTS or changing design conditions affecting the sizing of the OWTS.
16. "Consultant" - means a qualified professional as defined in these regulations.
17. "Cut bank" - means a land surface resulting from mechanical land shaping operations where the modified slope is greater than fifty (50) percent and the depth of cut exceeds thirty (30) inches or depth of effective soil whichever is less.
18. "Daily Wastewater Flow" - means the maximum liquid wastewater flow to be disposed of on a daily basis. For residential use, the daily design flow shall be one-hundred fifty (150) gallons per bedroom with a minimum of two bedrooms. The daily design flow for residential use may be reduced by a maximum of twenty-five (25) percent provided that low flow fixtures as defined in these regulations are specified and installed.
19. "Department" - means the Calaveras County Onsite Wastewater Treatment Department.
20. "Director" – means the director of environmental health or his/her designee.
21. "Disposal Area" - means the entire area used for dispersion of wastewater including the area designated for future expansion.
22. "Disposal Field" - means a leachfield or other type of system approved by the Department used for final subsurface wastewater treatment and /or disposal.
23. "Disposal Trench" - means a ditch or trench with vertical sides and substantially flat bottom with filter material or Department approved chamber units into which a gravity flow or pressure dosed single distribution pipe has been placed, the trench then being backfilled or covered with soil or other approved material.
24. "Distribution Box" / "D Box" - means a watertight structure which receives wastewater originating from the septic tank or other treatment facility effluent and distributes it concurrently into two (2) or more header pipes leading to the disposal area.
25. "Distribution Pipe/Distribution Lateral" - means perforated pipe used in the dispersion of wastewater originating from the septic tank or other treatment facility effluent into disposal trenches.
26. "Distribution Unit" - means a distribution box, twenty-two (22) degree elbow, dosing tank, diversion valve or box.

27. "Diversion Valve" - means a watertight receptacle which receives wastewater originating from the septic tank or other treatment facility effluent through one (1) inlet, distributes it to two (2) or more outlets, only one (1) of which is utilized at a given time.
28. "Dosing Chamber " - means a watertight receptacle located between the OWTS treatment unit (i.e. septic tank or supplemental treatment unit) and a disposal field equipped with an automatic siphon or pump designed to discharge wastewater intermittently to the distribution pipe or lateral in amounts proportioned to the capacity of such lines or laterals and to provide adequate rest periods between such discharges.
29. "Dwelling" - means any structure or building, or any portion thereof which is used, intended or designed to be inhabited for human living purposes.
30. "Easement" - means a right to use the land of another owner for a special purpose.
31. "Easement Agreement" - means that legal agreement which recognizes and condones the existence of a wastewater system component serving one parcel which physically exists on or within another parcel.
32. "Effective Seepage Area" - means the bottom area and the sidewall area within a disposal trench from the bottom of the trench to the bottom of the distribution pipe expressed on a "per foot of trench" basis.
33. "Effective Soil Depth" - means the depth of soil material above a layer that impedes movement of water, air, and growth of plant roots. Layers that differ from overlying soil material enough to limit effective soil depth are hardpans, claypans, fragipans, compacted soil, bedrock, saprolite, and clayey soil. Soils exhibiting average percolation rates slower than 240 mpi are not considered "effective soils."
34. "Effluent" - means the wastewater discharged from an OWTS treatment component or any portion thereof. Constituents commonly found in effluent include, but are not limited to, total and/or fecal coliform, total nitrogen (including ammonia compounds), chlorides, chlorine, MBAS, phosphates, caffeine, pharmaceuticals and sodium.
35. "Effluent Sewer" - means the part of the system of drainage piping that conveys partially treated wastewater originating from the septic tank or other treatment facility to a distribution unit or an absorption facility.
36. "Engineered System" - means an onsite wastewater treatment system that utilizes the components of a standard system, but that modifies or supplements those components with a special design or designs, such as pretreatment pressure dosed systems as approved by the Department, pumps, interceptor drains, etc., or a design which substantially conforms to design guidelines published by the State of California, EPA, or IAPMO.

37. "Escarpment" - means any naturally occurring slope greater than fifty (50) percent which extends vertically six (6) feet or more as measured from toe to top, and which is characterized by a long cliff or steep slope which separates two (2) or more comparatively level or gently sloping surfaces, and may intercept one (1) or more layer that limits effective soil depth.

38. "Evaporation System" - means a system consisting of a septic tank or other treatment facility, effluent sewer and an evaporation bed designed to distribute effluent for evaporation.

39. "Evapotranspiration-Infiltration System" - means a system consisting of a septic tank or other treatment facility, effluent sewer and a disposal bed or disposal trenches, designed to distribute effluent for evaporation, transpiration by plants, and by absorption into the underlying soil.

40. "Evapotranspiration and Infiltration (ETI) Bed" – means a subsurface disposal bed in which soil capillarity and root uptake help to disperse the effluent from a septic tank or supplemental treatment system through surface evaporation, soil absorption and plant transpiration.

41. "Existing OWTS" - means any installed OWTS constructed in conformance with the rules, laws and local ordinances in effect at the time of construction.

42. "Expansion / Replacement Area" - means an area of sufficient size and physical characteristics complying with all setback requirements which allows future expansion or replacement of the disposal field. For parcels created prior to March 9, 1981, and utilizing a standard or modified standard system, the minimum required expansion / replacement area is fifty (50) percent. Except for engineered systems with standard soil conditions, all other systems required expansion / replacement area shall be one-hundred (100) percent. Engineered systems with standard soil conditions shall require a minimum of fifty (50) percent expansion area.

43. "Experimental System" - means an OWTS which differs from the standard system, engineered system or package system as defined herein.

44. "Failing System" - includes, but is not limited to, any OWTS which discharges untreated or incompletely treated wastewater or septic tank effluent directly or indirectly onto the ground surface or into public waters that results in the creation of a public nuisance or creates a potential health hazard.

Additional categories of failed systems while not resulting in the creation of a public nuisance or potential health hazard include slow percolation due to root intrusion or biomat formation. These failures must be confirmed by a qualified professional or OWTS inspector.

45. "Fecal Coliform Bacteria" - means indicator bacteria common to the digestive systems of warm-blooded animals that are cultured in standard tests to indicate either contamination from wastewater or the level of treatment.

46. "Filter Fabric" - means a woven or spun-bonded sheet material used to impede or prevent the movement of sand, silt and clay into filter material.

47. "Filter Material" - means clean, washed gravel ranging from three-quarters (3/4) to two and one-half (2-1/2) inches in size or clean crushed rock ranging in size from one and one-half (1-1/2) to two and one-half (2-1/2) inches.
48. "Fill bank" – means any soil, rock or other material which is placed within an excavation or over the pre-existing surface of the ground creating a fill bank.
49. "Flood Hazard" - means a risk of inundation during or following a 24-hour 100-year storm event. Where available, one-hundred (100) year flood zone mapping by the Federal Emergency Management Agency (FEMA) may be used for this determination.
50. "Flowing Stream" - means a natural or man-made drainage course which is identified on a U.S.G.S. Quadrangle Map as a dashed or solid blue line.
51. "Fragipan" - means a loamy subsurface horizon with high bulk density relative to the horizon above, seemingly cemented when dry, and weakly to moderately brittle when moist. Fragipans are mottled and low in organic matter. They impede movement of water, air, and growth of plant roots.
52. "Graywater System" – means a disposal system which can be utilized to dispose of untreated waste water which has not come into contact with water closet waste. Graywater includes used water from bathtubs, showers, bathroom wash basins, clothes washing machines or an equivalent discharge as approved by the Administrative Authority. Graywater system design shall conform to the California Plumbing Code, Appendix G – Graywater Systems.
53. "Groundwater" – means subsurface water that occurs beneath the ground surface in fully saturated zones within soils and other geologic formations. For purposes of these regulations, groundwater is subsurface water that does not demonstrate the physical, chemical and/or biological characteristics of effluent.
54. "Guest Room" – means an accommodation combining living, sleeping, sanitary, and storage facilities within a compartment.
55. "Hardpan" - means a hardened layer in soil caused by cementation of soil particles with either, silica, calcium carbonate, or iron and/or organic matters. The hardness does not change appreciably with changes in moisture content. Hardpans impede movement of water and air and growth of plant roots.
56. "Header Pipe" - means a tight jointed part of the wastewater drainage conduit which receives septic tank effluent from the distribution box, or effluent sewer and conveys it to the disposal area.
57. "Health Officer" - means the Health Officer of Calaveras County or duly designated representative.

58. "High Strength Wastewater" – Means wastewater having a 30-day average concentration of biochemical oxygen demand (BOD) greater than 300 milligrams-per-liter (mg/L) or of total suspended solids (TSS) greater than 330mg/l or a fats, oil, and grease (FOG) concentration greater than 100 mg/L prior to the septic tank or other OWTS treatment component.

59. "Interceptor Drain" - means a groundwater drainage system which intercepts and diverts surface or groundwater from, but not limited to, a disposal area.

60. "Inspection Riser" - means a pipe connected to a distribution lateral, raised above ground level and used for maintaining and inspecting operation of the lateral.

61. "Lateral Pipe" - means "Distribution Pipe".

62. "Loft" – for purposes of these regulations, means a non-partitioned upper room or floor located directly under the roof structure leaving one or more sides open to the floor below that is conditioned and/or partitioned used for sleeping or as a guest room as defined in these regulations.

63. "Low Flow Fixtures" - means water-closets which use (1.28) gallons or less per flush and shower heads which use two (2) gallons per minute or less.

64. "Medium Sand" - means a mixture of sand that meets the following gradation specifications:

<u>Sieve Size</u>	<u>Percent Passing</u>
3/8.....	100
#4	90-100
#10	62-100
#16	45-82
#30	25-55
#50	5-20
#60	0-10
#100	0-4
#200	0-2

65. "Minutes Per Inch or (MPI)" – means the number of minutes it takes to absorb one (1) inch of water when soil is being evaluated under a percolation test.

66. "Monitoring Well" - means any artificial excavation made by any method for the purpose of monitoring fluctuations in groundwater levels, quality of underground waters or the concentration of contaminants in underground waters. For purposes of these regulations, monitoring wells are typically used to determine the presence or absence and levels of subsurface wastewater effluent. Water samples may be secured through use of the monitoring well.

67. "Mottling" - means a soil condition that results from oxidizing or reducing conditions due to soil moisture changes from saturated conditions to unsaturated conditions over time. Mottling is characterized by spots or blotches of different colors or shades of color (grays and reds) interspersed with the dominant color as described by the United States Department of Agriculture soil classification system. The soil can be indicative of historic seasonal groundwater levels.

68. "Observation Pipe" - means a perforated gravel packed pipe, no less than three inches in diameter, constructed in the ground or disposal trench and used to observe water height and to obtain water samples.

69. "Onsite Wastewater Treatment System(s)" (OWTS's) - means Onsite Wastewater Treatment Systems as defined in Section 13290 of the California Water Code as individual disposal systems, community collection and disposal systems and collection and disposal systems that use subsurface disposal.

70. "Owner" - means any person who alone, or jointly, or severally with others:

- a. Has legal title to any single lot, dwelling, dwelling unit, or commercial facility; or,
- b. Has care, charge or control of any real property as agent, executor, executrix, administrator, administrator, trustee, commercial lessee, or guardian of the estate of the holder of legal title.

71. "OWTS Inspector" - means a person, knowledgeable in OWTS inspection and holding a current Inspector certification by the National Association of Wastewater Transporters (NAWT) or the California Onsite Wastewater Association (COWA).

72. "Percolation Testing" - means measuring the percolative qualities of soils in accordance with the procedures contained in these regulations.

73. "Permanent Groundwater Table" - means the upper surface of a saturated zone that exists year-round. The thickness of the saturated zone, and, as a result, the elevation of the permanent groundwater table may fluctuate annually. Both the saturated zone and associated permanent groundwater table will be present at some depth beneath the surface throughout the year.

74. "Pond" - means an artificially confined body of water.

75. "Perched Water" - means subsurface water that occurs beneath the ground within the zone of aeration wherein the subsurface water has encountered a restrictive impervious stratum typically separating it from the main water table or groundwater source.

76. "Permit" - means the written document issued by the Department and signed by the Owner which authorizes OWTS repair or system construction.

77. "Pressure Distribution System" - means any system designed to uniformly distribute wastewater originating from the septic tank or other treatment unit effluent under pressure in an absorption or treatment facility.

78. "Profile" - means an open pit ("Profile Trench") dug to sufficient size and depth to permit thorough examination of the soil to evaluate its suitability for subsurface wastewater disposal or a detailed written description of the soil conditions encountered ("Profile Log").

79. "Qualified professional" – means a Registered Civil Engineer, Registered Environmental Health Specialist, Registered Geologist with Specialty Certification in Engineering Geology as recognized by the State of California Department of Consumer Affairs, or a Soil Scientist certified by the Soil Science Society of America. Registered Geologists without the Specialty Certification in Engineering Geology may conduct soils investigations but may not perform designs or submit plans for sewage disposal system construction.

80. "Redundant or Alternate Distribution Disposal Field System" - means a system in which two complete disposal systems are installed, the disposal trenches of each system alternate with each other and only one system operates at a given time.

81. "Repair" - means the replacement or installation of any portion of a damaged or failing OWTS.

82. "Replacement Area" means Expansion / Replacement Area.

83. "Restrictive Horizon" - means a layer that, because of its low permeability, retards the movement of water.

84. "Rock" - means any naturally formed aggregate of one or more minerals (i.e. granite, shale, marble); or a body of undifferentiated matter (i.e. obsidian), or of solid organic matter.

85. "Sanitary sewer" means a public or community wastewater delivery system that connects to an approved wastewater treatment plant as regulated by the Regional Water Quality Control Board – Central Valley Region.

86. "Saprolite" - means weathered material underlying the soil that grades from soft, thoroughly decomposed rock to rock that has been weathered sufficiently so that it can be broken in the hands or cut with a knife. It does not include hard bedrock or hard fractured bedrock. It has rock structure instead of soil structure.

87. "Saturated Zone" - means a three (3) dimensional layer, lens or other section of the subsurface in which all open spaces including joints, fractures, interstitial voids, pores, etc., are

filled with groundwater. The thickness and extent of a saturated zone may vary seasonally or periodically in response to changes in the rate or amount of groundwater recharge or discharge.

88. "Seasonal Drainage Course" - means a natural or man-made drainage course which exhibits channel features such as a defined bed and bank or surface scour, and does not appear as a dashed or solid blue line on a U.S.G.S. 7 ½ minute Quadrangle Map.

89. "Septic Tank" - means a watertight monolithic concrete receptacle or International Association of Plumbing and Mechanical Officials (IAPMO) approved or equivalent polyethylene or fiberglass receptacle which receives the wastewater discharge of a drainage system or part thereof, designed and constructed so as to retain solids, digest organic matter through a period of detention and allow the liquids to discharge to a subsequent treatment unit or to a soil absorption facility.

90. "Septic Tank Effluent" - means partially treated wastewater which is discharged from a septic tank.

91. "Slope" - means the rate of fall or drop in feet per one-hundred (100) feet, expressed as a percent.

92. "Soil" - means the unconsolidated material lying naturally on the surface of the earth that possesses percolative, infiltrative, and filtration capabilities. For the purpose of these regulations, the United States Department of Agriculture (U.S.D.A.) system of soil classification is used. For purposes of these regulations soil consists of less than 50 percent rock by volume.

93. "Standard System" - means an OWTS consisting of a septic tank, distribution unit and gravity fed absorption facility. A standard system may include the use of a capping fill or Department approved infiltration chambers.

94. "Subsurface Wastewater Disposal" - means the physical, chemical or bacteriological breakdown and aerobic treatment of wastewater in the unsaturated zone of the soil.

95. "Temporary Groundwater Table" - means the upper surface of a saturated zone that exists only on a seasonal or periodic basis. Like a permanent groundwater table, the elevation of a temporary groundwater table may fluctuate. However, a temporary groundwater table and associated saturated zone will dissipate (dry up) for a period of time each year.

96. "Textile Filter System" - means a pretreatment system that is designed to reduce total dissolved solids (TDS), pathogens and total nitrogen (TN) among other constituents using fabric sheets to achieve reduction.

97. "Wastewater" - means any wastewater or water-carried solid waste containing organic or inorganic matter in suspension or solution, including kitchen, bath and laundry wastes from

residences, buildings, industrial establishments, or other places, together with such groundwater infiltration, surface water or industrial waste as may be present.

98. "Water Closet" – means a plumbing fixture (which may be used for both solids and liquids) in which the waste is removed by flushing with water.

99. "Wet Weather Period" - means that portion of the year designated by the Agency Administrator for wet weather determination of soil and groundwater conditions. Typically, this occurs in the late winter and spring following accumulation of eighty (80) percent of the seasonal average annual rainfall, subject to the judgment of the Agency Administrator depending on local climatic conditions.

100. "Wet Weather Testing"- means physical site evaluation during the wet weather period to determine maximum groundwater elevations.

101. "Zone of Aeration" - means the unsaturated zone that occurs below the ground surface and above the point at which the upper limit of the water table exists.

C. General Provisions

1. Public Waters or Public Health Hazards. If, in the judgment of the Agency Administrator proposed operation of a wastewater treatment system would cause pollution of public water or create a public health hazard, installation or use of an OWTS shall not be authorized.

2. Approved Disposal Required. All wastewater shall be treated and disposed of in a manner approved by the Department.

3. Discharge of Wastewater Prohibited. Discharge of untreated or partially treated wastewater or septic tank effluent directly or indirectly onto the ground surface or into public waters constitutes a public health hazard and is prohibited.

4. Discharges Prohibited. No cooling water, air conditioning water, water softener brine, groundwater, oil, hazardous materials or roof drainage shall be discharged into any OWTS.

5. Increased Flows Prohibited. Except where specifically approved, no person shall connect a dwelling or commercial facility to a system if the total projected wastewater flow would be greater than that allowed under the original system construction permit. No person shall expand a building or residence where such expansion may result in the potential for increasing either the quantity or strength of wastewater discharged to an OWTS above that allowed in the permit.

6. Plumbing Fixtures shall be connected. All plumbing fixtures in dwellings and commercial facilities, from which wastewater is or may be discharged, shall be connected to, and shall discharge into an approved public wastewater delivery system (sanitary sewer) or an approved OWTS.

7. Accessory Dwellings. Whether an accessory dwelling is attached or detached from the primary dwelling, all accessory dwellings shall be connected to an independent OWTS, separate from the primary dwelling. An exception may be made when a single system may be increased in size to meet additional loading.

8. Adjacent Parcel Encroachments. Such encroachments shall conform to the following:

(a.) A recorded utility easement or covenant against conflicting uses, on a form approved by the Department, is required whenever an OWTS or portion of an OWTS crosses a property line separating different legal parcels. The easement must accommodate that part of the OWTS, including setbacks, which lies beyond the property line, and must allow entry to install, maintain and repair the OWTS.

(b.) The easement and covenant shall:

- Agree not to put that portion of the other lot or parcel to a conflicting use; and
- Agree that upon severance of the lots or parcels, to grant or reserve and record a utility easement, on a form approved by the Department, in favor of the owner of the lot or parcel served by the OWTS.

9. Replacement Area. Unless designated by law or rule that takes legal precedence, system replacement area shall be kept vacant, free of construction, infrastructure including utilities, vehicular traffic, soil modification, and surface disturbance.

10. Operation and Maintenance. All OWTS's shall be operated and maintained so as not to create a public health hazard or cause water pollution.

11. No person shall dispose of wastewater or septic tank cleanings in any location not authorized by the Department under applicable laws and rules for such disposal.

12. It is the applicant's/owner's responsibility to provide sufficient information to the Department to reasonably assure the requirements herein are fully met.

13. Nothing in these regulations shall be construed to affect existing approved valid applications for permits, existing permits, and approved and properly functioning OWTS's already installed as of the date of adoption of these regulations.

CHAPTER 2 - REQUIREMENTS FOR ONSITE WASTEWATER TREATMENT SYSTEMS

A. General

1. An OWTS - Permit shall be required for development with plumbing fixtures on any parcel not served by a community wastewater delivery system.

An OWTS Permit shall not be issued if a wastewater delivery system is within 200 feet distance from the residence or when a wastewater district requires connection to the public sewer within a sewer service area (community service area) unless otherwise approved by the District responsible for the wastewater system.

2. Except where parcels are to be served by a community wastewater delivery system, all requirements for the development of an OWTS must be met as a condition of creation of any new parcel in the County; by major or minor subdivision or lot split. Lot line adjustments shall not be allowed unless it can be demonstrated by the applicant that each affected parcel can meet these requirements or where the purpose of the lot line adjustment is to allow a net improvement in conditions for onsite wastewater disposal on all affected parcels.

3. All information gathered which is pertinent to onsite wastewater disposal shall be submitted to the Department, whether passing or failing, used or not used for subsequent applications, or positive or negative with respect to acceptability of the parcel to accommodate an OWTS.

4. Land developments consisting of less than one-hundred (100) single family units shall be processed by Calaveras County for compliance with the most recent regulations addressing wastewater treatment systems as adopted by the County Board of Supervisors. The Regional Water Quality Control Board may also require submission of a Report of Waste Discharge for subdivisions of less than one-hundred (100) single family units. Tentative maps for subdivisions of one-hundred (100) or more single family units shall be submitted to the Regional Water Quality Control Board and the Department with sufficient information to allow review of the proposal for protection of water quality.

5. Minimum lot size for creation of new, single family residential lots served by a public water supply, but not a community sewer, shall be one (1) acre.

6. Minimum lot size for creation of new single family residential lot served by an individual well and an OWTS shall be five (5) acres.

7. Where physical constraints do not allow installation of a standard system, engineered systems may be designed for shallow effective soil depths and for slow percolation rates. The primary and replacement/expansion areas of engineered systems shall comply with all setback requirements. For creation of new parcels, engineered systems will only be considered on parcels of (1) one acre or larger.

8. Minor encroachments on horizontal setback requirements may be submitted for review as a variance on existing legal lots. With the exception of repair scenarios, deviation from setbacks to wells, flowing streams, seasonal drainage courses, and surface water bodies used or intended to be used as a domestic water supply are not allowed. For the purpose of the section, "minor" deviations are less than ten (10) percent of the setback distance.
9. Approvals of engineered system designs under this section will only be granted after the applicant has demonstrated to the satisfaction of the Department that the requirements for a standard system could not be met.
10. All engineered systems shall have plans prepared by a qualified professional.
11. An OWTS permit will only be issued for projects that have a projected wastewater flow of up to 10,000 gpd. Any OWTS with a design flow exceeding 10,000 gpd shall be regulated by the respective Regional Water Quality Control Board.
12. An OWTS permit will not be issued for an OWTS that is dedicated to receiving significant amounts of wastewater dumped from recreational vehicle holding tanks or high strength wastewater.

B. Onsite Wastewater Treatment System Permit Requirements

Refer to the following pages for schematics demonstrating the basic steps involved with determining the type of OWTS required for: repair of failing systems, development on an existing parcel, and creation of a new parcel:

1. Application for an OWTS Permit shall be made by the owner of the property involved or his/her authorized representative.
2. It is the responsibility of any and all persons performing any part of the installation or repair of an OWTS or package treatment plant to ascertain that a valid OWTS permit has been issued by the Department prior to the initiation of any repair or installation.
3. All installations shall be installed in substantial conformance to the approved design and permit.
4. Notification shall be made to the owner of a public water system prior to the issuing of an installation or repair permit for an OWTS, if the OWTS is within 1200 feet of a public water systems' surface water intake for drinking water, is in the drainage area catchment in which the intake point is located and is located such that it may impact water quality at the intake point, or if the OWTS is within a horizontal sanitary setback from a public well. The owner shall be notified in writing and given 10 working days to respond. The written notification shall, at a minimum, state the reason for the notification, property owners name and mailing address, property site address, and Assessors's Parcel Number. This written notification shall be accompanied with a copy of the permit application.

5. Gravity fed OWTS permit applications shall include three (3) copies of a plot plan. The plot plan shall be drawn at a scale of one inch equals twenty feet (1" = 20') and shall include information required by the Agency Administrator for permit requirements. The information shall include, but is not limited to, the following:

- a. Owner's name, street address, and job address.
- b. Names of streets or roads fronting the property and any easements.
- c. Outline of property giving dimensions and north direction.
- d. Dimensions, outlines, and locations of all existing and proposed structures, including hard surfaces such as patio, driveways and walks.
- e. Location of house building sewer outlet and proposed location of septic tank and disposal field.
- f. Location and nature of any existing OWTS on the property, distance to structures and easements or property lines.
- g. Location of any existing or proposed well, domestic or irrigation, in use or abandoned either on this property or within one-hundred fifty (150) feet of the property line.
- h. Location of profile trenches and percolation test holes (if performed).
- i. Flood hazard (FEMA 100 year event).
- j. Source of domestic water supply.
- k. Setback requirements of front, back and sides.
- l. Distances and location of any rivers, streams, water courses, ponds and culverts.

6. The OWTS Permit Inspection/Observation Card shall be posted at a suitable location on the property when work commences, and shall remain posted until inspection and final approval by the Department.

7. Final approval of the OWTS Permit may be withheld until:

- a. Location and/or installation of an onsite well are approved and/or installed.
- b. Structures and all accessory construction as indicated on the plot plan are completed.

- c. Any wells, OWTS components, or structures to be removed are properly abandoned to County adopted standards.
- d. Compliance with any other conditions specified on the permit.
- e. For all engineered OWTS's a letter has been submitted by the qualified professional if applicable certifying the OWTS installation has been completed in substantial conformance to the approved design.

C. Site Evaluation

1. A permit for excavation of profile holes is required as part of all site evaluations to establish a log of soil formations and groundwater level in an area that is within the proposed disposal and expansion area. The requirement for a profile permit may be waived when, in the opinion of the Department, there is sufficient existing data. Property corners shall be clearly marked for the profile inspector on all parcels less than two (2) acres in size.
2. A Qualified Professional shall assess all field investigation data and/or existing data to properly site all OWTS. The Qualified Professional shall identify related siting restrictions and design criteria to protect water quality and public health.
3. Field Investigations
 - a. Minimum effective soil depth. A minimum of four reasonably spaced profile trenches, two in the initial and two in the replacement area are required to define a disposal area. In areas where soils are known to be variable, or where the initial profiles demonstrate differing or variable soil conditions, additional profiles may be required. See Volume II for specific soil depth requirements. The United States Department of Agriculture (USDA) system of soils classification shall be used for the profile descriptions. Each profile log shall include ground slope, effective soil depth, estimated and observed depth to perched and/or permanent groundwater, and a description of each prominent soil horizon which includes: depth, moist color, texture, structure, consistency, field moisture, and estimated permeability. Other USDA soil horizon descriptions may be included along with other general comments. Horizon descriptions must be reported in the sequence prescribed by USDA.
 - b. Minimum depth to perched or permanent groundwater. The depth to water shall be based on observations of soil characteristics in the profiles including soil moisture and mottling.
 - c. Soil permeability based on percolation testing. A percolation rate of one-hundred twenty (120) mpi at proposed trench depth or faster is required for a standard system. Rates between one hundred-twenty one (121) and two hundred-forty (240) mpi require engineered system designs.

- d. Ground slope. Disposal areas in which the ground slope exceeds thirty (30) percent are unacceptable for standard systems. Ground slope in proposed disposal areas where capping fill is recommended shall not exceed twenty-five (25) percent unless special site specific erosion control and slope stability measures are specified by a qualified professional.
- e. Fill Banks. Disposal fields shall not be placed in fill banks.

CHAPTER 3 - LAND DEVELOPMENT/CREATION OF NEW PARCELS

A. Land Development/Creation of New Parcels

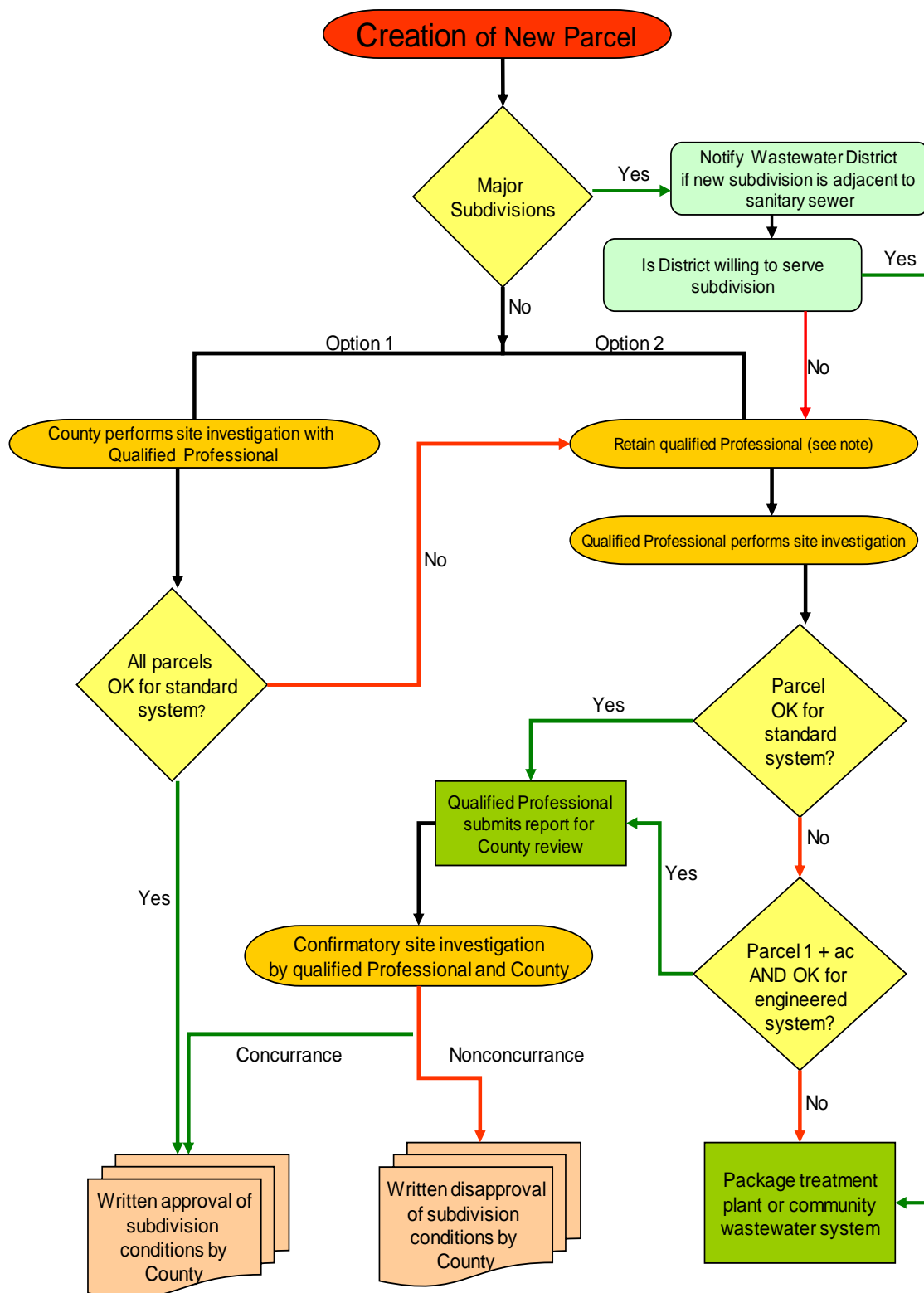
- 1. Minimum disposal area-creation of new parcels. Unless percolation testing is performed to demonstrate otherwise or the qualified professional's report recommends additional area, the minimum required disposal area for the creation of new parcels shall be twelve thousand (12,000) square feet. The minimum usable disposal area required relative to percolation rates for a single family home shall be as follows:

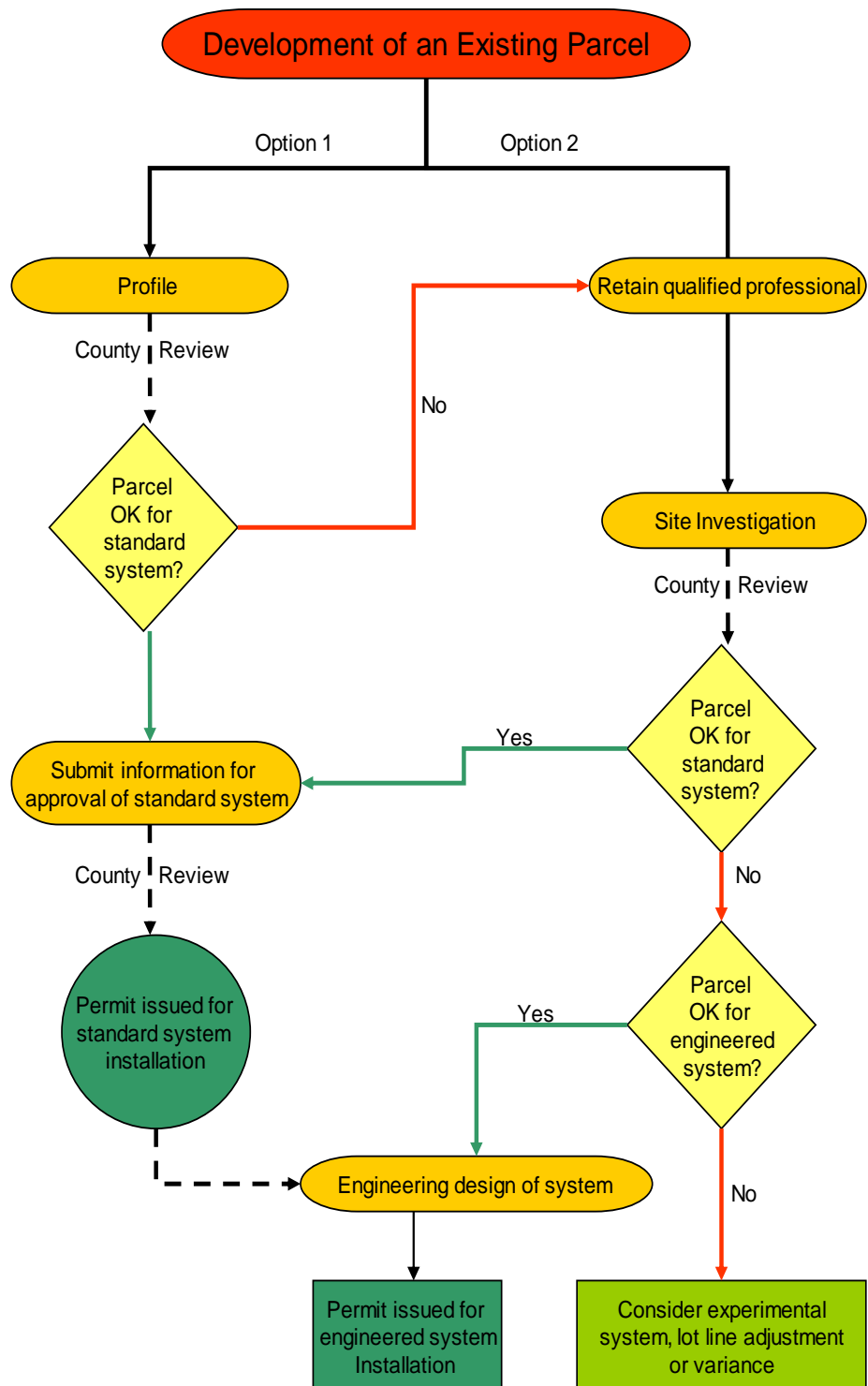
Percolation Rate (minutes/Inch/mpi)	Minimum Usable Disposal Area (ft ²)* (new parcels)
101 - 120	18,000
81 - 100	16,000
61 - 80	14,000
41 - 60	12,000
21 - 40	10,000
5 - 20	8,000
5 - 10	6,000

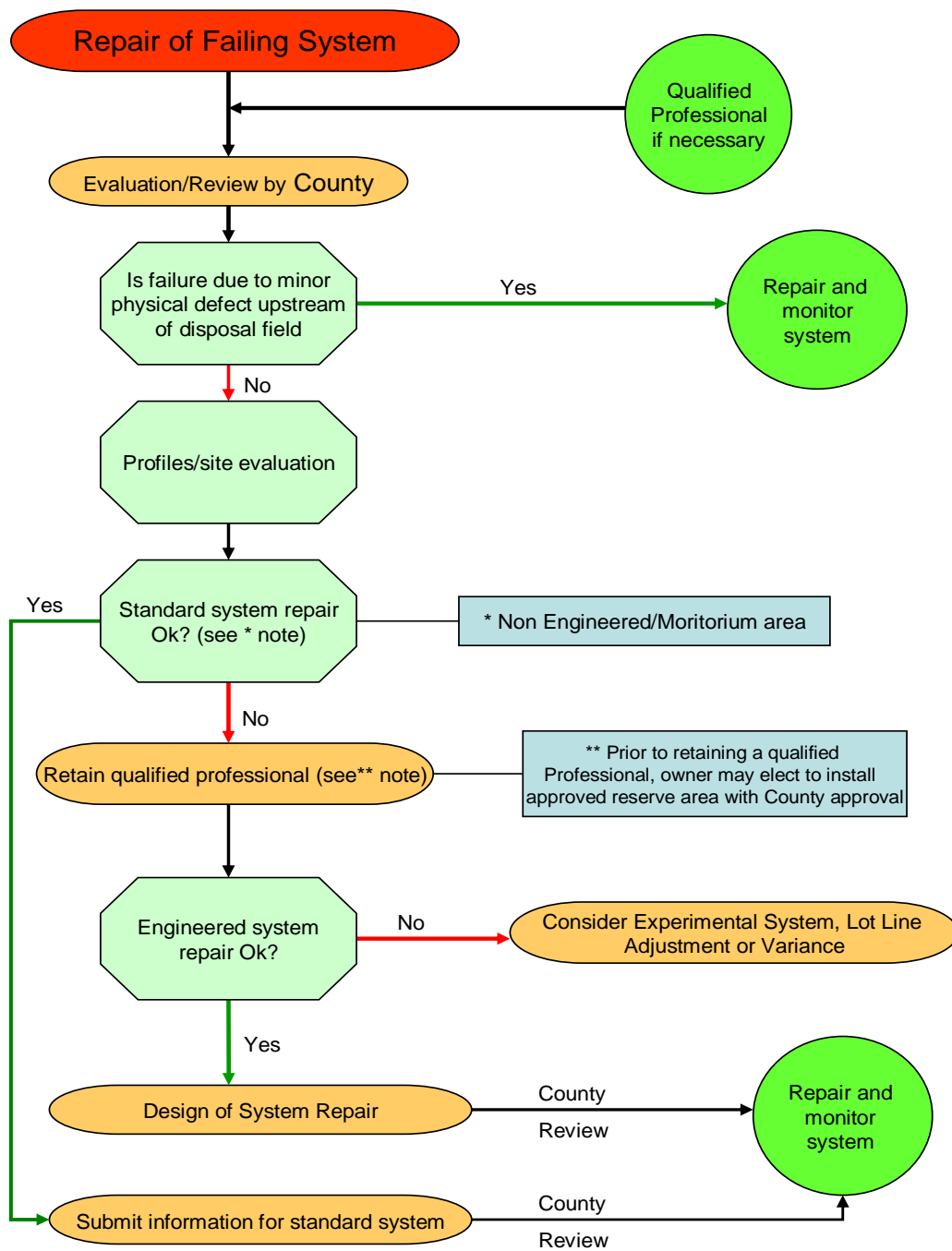
*Includes a one-hundred (100) percent replacement area.

- 2. Reporting. The qualified professional shall submit to the Department a report which at a minimum includes the following items.
 - a. Certification. The report shall bear the registration number, expiration date and signature of the individual responsible and shall include a statement that the field investigations were performed in accordance with these regulations and that the conditions encountered in the profiles are representative of the conditions anticipated within the area identified.
 - b. Soil profile logs. The report shall include logs for all profiles excavated on the proposed land division during the site/soils investigations. The United States Department of Agriculture (USDA) system of soils classification shall be used for

- profile descriptions. Each profile log shall include ground slope, effective soil depth, estimated and observed depth to perched and/or permanent groundwater, and a description of each prominent soil horizon which includes: depth, moist color, texture, structure, consistency, field moisture, and estimated permeability. Other USDA soil horizon descriptions may be included along with other general comments. Horizon descriptions must be reported in the sequence prescribed by USDA.
- c. Percolation test data. The report shall include percolation test data sheets for all percolation testing performed on the proposed land divisions.
 - d. Location map. The report shall include a map of the proposed land division on which all of the excavated profiles and/or percolation test holes are approximately located. A print of the tentative map may be used for this purpose.
 - e. Groundwater conditions. The report shall indicate depth below the bottom of the proposed disposal trenches to the anticipated highest elevation of groundwater during the wettest months of a normal rainfall year.
 - f. Proposed disposal area sketches. For each lot/parcel the report shall include a sketch of the proposed disposal area, at a scale of one inch equals twenty feet (1"=20'), which accurately includes a north arrow, the proposed disposal area boundary, the location of all soils investigations within the disposal area boundaries, contours or slope arrows, other prominent topographical features, applicable setbacks, and a tie (bearing and distance) from one corner of the disposal area to the nearest lot/parcel boundary monument.
 - g. Recommendations. For each lot/parcel the report shall include recommendations for the disposal system which includes disposal trench width and depth, required length of disposal trench per bedroom, and the possible necessity of an engineered system designed by a qualified professional.
3. Department Review. Upon submittal of the report, the qualified professional shall schedule with the Department for a field inspection of the proposed disposal areas on each lot/parcel. This field inspection, which shall be performed jointly by the qualified professional and the Department, shall include the observation of at least two profiles each located within each proposed disposal area. Based upon a review of the report and upon observation of the profiles, the Department will issue a letter of findings to the applicant.
 4. It is not necessary to meet the Land Development/Creation of New Parcel requirements, when creating parcels of 40 acres in size or greater.







CHAPTER 4 - ALTERATION OF EXISTING SYSTEMS

A. Permit Required

An OWTS Permit shall be required for the addition, replacement, modification, or repair of any part of an OWTS. This does not include routine pumping and cleaning of the septic tank.

B. Modification Prohibited

It is prohibited to modify a building or structure in a manner which changes the character of the wastewater discharged (quality or quantity) without obtaining a new permit which address those changes.

C. System Repairs

Repairs of existing OWTS failures shall consider protection of public health paramount followed by protection of surface and groundwater quality.

1. All repairs of OWTS's shall comply with the requirements for standard systems wherever possible. If it is demonstrated that particular standard system requirements cannot be met, the design of repairs may follow the minimum guidelines for development of engineered systems. If it is not possible to meet the requirements for engineered systems, the design of an experimental system may be considered subject to the approval of the Agency Administrator.
2. Notification shall be made to the owner of the public well or water intake and the California Department of Public Health as soon as practicable, but no later than 72 hours, upon the discovery of a failing OWTS that is within the required setbacks to any public water supply as stated in Volume II, Chapter 4, Section D of this document.

Minor Repairs

- a. A minor repair is considered any alteration, repair, maintenance or replacement of solid piping within a standard, gravity OWTS. Any minor repair that includes the gravity tightline between the septic tank and disposal trench(s) or between the distribution box(s) and disposal trench(s) shall require a permit. All gravity tightlines between all disposal trenches requires a permit. Installation of cleanouts does not require a permit.
- b. Any minor repair that includes the building sewer between the structure and the inlet to the septic tank does not require a permit. Installation or replacement of septic tank risers that do not affect the performance or integrity of the tank also does not require a permit.
- c. Mechanical components that may also be repaired/replaced are not considered a minor repair and do not require a permit.

Major Repairs

- a. A major repair is considered any alteration, repair or replacement of: 1) the septic tank, distribution box or any perforated piping within the disposal trenches of a standard, gravity OWTS, or 2) any portion or component of an engineered or supplemental treatment system except mechanical components. Repair of an existing engineered system requires submittal of design plans from a qualified professional for approval. Replacement of perforated piping only within a gravity OWTS is not recognized as a repair. A permit is required for all major repairs.
- b. When an existing gravity OWTS has only one disposal trench, and any portion of the perforated pipe/drain rock has been impacted by roots, then a new disposal field shall be constructed.
- c. When records confirm that an existing gravity OWTS has multiple disposal trenches and where only the first trench is impacted by roots or is otherwise saturated, all remaining trenches may be connected to accept effluent. Additional disposal trench shall be installed to replace the portion that was abandoned and shall take into consideration equivalent liner feet. Whenever possible, distribution box (s) shall be used to distribute effluent to all remaining disposal trenches. The remaining disposal trenches must be in proper working condition. Existing trenches must meet current soil and site requirements. A Qualified Professional will be required to submit plans for approval in required areas.
- d. When a repair permit is issued, only that portion or component of the existing system that is failing or causing the failure shall be required to be repaired. Issuance of a permit for repair must be accompanied by written determination and confirmation by the homeowner, qualified professional or OWTS inspector.
- e. Covers on concrete septic tanks that are in disrepair shall be replaced with new concrete covers or water tight risers. If any septic tank shows signs of deterioration to the point it may no longer be water tight, the entire tank must be replaced under permit as issued by the Department.
- f. Separated systems may be considered in the repair concept for failing systems to dispose of waste from sinks, lavatories, and showers where approved means are used to dispose of wastewater. Separated system design shall conform to the California Plumbing Code, Appendix G - Graywater Systems.
- g. Composting or incinerating toilets may be approved by the Agency Administrator as an experimental system on an individual basis and only as a means of providing relief for a failing existing system.
- h. Water meter installation shall be considered in the repair plan for failing disposal fields.
- i. Low flow plumbing fixtures, pressure reducers and other means of reducing wastewater flow shall be considered for all system repairs. Where the repair strategy is based on lower design flows, a water meter, effluent meter or other approved method of documenting wastewater

quantities may be installed and monitored when required by the Department. Verification of installation of low flow fixtures must be made by the qualified professional. Such verification shall be demonstrated to the Department.

j. Vault toilets and complete containment systems may be approved by the Agency Administrator on an individual temporary basis as a means of providing interim abatement for a failing system, provided a contract for routine off-haul of the vault contents is obtained from a registered hauler as support for the proposed repair scheme. The use of this interim measure may not exceed one (1) year. The vault shall be equipped with high water alarms approved by the Department.

In addition to system failure, nothing in these regulations shall prohibit the use of containment systems on a temporary basis not to exceed one (1) year as a result of extraordinary circumstances.

D. Bedroom Additions

1. Expansion of an existing gravity fed OWTS installed under permit in conformance with regulations applicable at the time of installation but found to not be in conformance at the time of proposed expansion must be upgraded to meet the current regulations. The Agency Administrator may however grant an exception to this requirement on a case by case basis as it applies to the following; where an existing permitted gravity fed OWTS is found to be functioning adequately, the addition of not more than one (1) bedroom-equivalent may be permitted without OWTS alteration provided the following:
 - a. Submittal of a satisfactory inspection report from an OWTS Inspector.
 - b. Dwelling plumbing is entirely retrofitted with 1.28 gal/flush water closets and (1.8) gpm (maximum) faucet fixtures. The agency administrator may however grant an exception where existing water closets are 1.6 gal/flush and faucet fixtures are 2.0 gpm.
 - c. Excavation of soil profile holes and site evaluation to identify 100% expansion area to accommodate the renovated dwelling, (permit required). If soil and site conditions require an engineered system, a qualified professional shall be required to submit plans for the reserved disposal field replacement OWTS prior to approval.
 - d. Submittal of a properly completed Indemnification Form.
2. Expansion of an existing engineered OWTS requires the submittal of design plans by a qualified professional for approval. Upon approval, the OWTS expansion shall be constructed prior to Building Department permit approval. The OWTS design must accommodate the proposed expansion.

E. Abatement Required

The Agency Administrator may prescribe the use of alternative materials and specifications when and where necessary to protect public health and safety and prevent environmental degradation. The Agency Administrator shall take whatever steps necessary to protect public health and safety and prevent environmental degradation including, in extreme cases, requiring

abandonment and/or condemnation of the dwelling for continued chronic failures. Nothing in these Rules and Regulations shall diminish the authority of the Health Officer to enforce the provisions of the Health and Safety Code.

CHAPTER 5 - AREAS OF SPECIAL CONSIDERATION

A. Designation

Based upon a finding of limited effective soil depth, very shallow groundwater, documented impacts on surface or groundwater quality, or chronic difficulties with recurring disposal field failures, the Agency Administrator in concurrence with the Board of Supervisors may designate an Area of Special Consideration. Within such areas, the design of OWTS's will require more careful evaluation and coordination with the Department to avoid additional future problems.

B. Additional Requirements

Additional site investigation and design requirements may be considered by the Agency Administrator in concurrence with the County Board of Supervisors in designating Areas of Special Consideration, over and above the requirements for other areas of the County.

C. State Jurisdictions

In addition to the County established Areas of Special Consideration, the California Regional Water Quality Control Board – Central Valley Region may adopt particular requirements which govern OWTS management within a particular area. Such action could include establishment of moratorium areas for all new OWTS's, a prohibition on waivers to the requirements of the Basin Plan, or other such action. Where such action is taken by the Regional Water Quality Control Board, it shall be considered a violation of these regulations to take any action contrary to the State order.

These regulations do not preclude the County from entering into any agreement or Memorandum of Understanding (MOU) with the State Water Resources Control Board or Regional Water Quality Control Board – Central Valley Region as it applies to design, installation and monitoring of OWTS's.

D. Rebuild Requirements

When a structure is to be rebuilt due to fire or other natural disaster, and it is serviced by an existing OWTS, the following requirements shall apply:

1. If County records exist that demonstrate the type, size, and location of a properly inspected OWTS, a structure can be rebuilt without further requirements.
2. If there are no existing County records, then the following items are required for approval:
 - a. Submittal of a satisfactory inspection report from an OWTS Inspector.
 - b. Submittal of a properly completed Indemnification Form.

- c. Excavation of soil profile holes and site evaluation to identify 100% expansion area to accommodate the rebuilt dwelling, (permit required). If soil and site conditions require an engineered system, a qualified professional shall be required to submit plans for the reserved disposal field replacement OWTS prior to approval.

The rebuilt structure shall be sized (number of bedrooms) according to the parameters of the existing OWTS. If additional bedrooms are to be added to the original design, the bedroom addition requirements shall prevail. If a larger structure is to be built resulting in an increase of the structural footprint, the applicant shall provide proof that the existing OWTS will not be adversely impacted and that 100% expansion area is available.

E. Graywater Systems

Graywater systems can be utilized to dispose of untreated waste water which has not come into contact with water closet waste. Graywater includes used water from bathtubs, showers, bathroom wash basins, clothes washing machines or an equivalent discharge as approved by the Administrative Authority. Graywater system design shall conform to the California Plumbing Code, Appendix G – Graywater Systems.

CALAVERAS COUNTY
RULES AND REGULATIONS
FOR
ONSITE WASTEWATER TREATMENT SYSTEMS

VOLUME II - DESIGN STANDARDS

RESOLUTION 92-259

AS AMENDED BY

RESOLUTION 93-45, 94-195, 10-147, 12-113, 1834 and 20170314r039.

March 14, 2017

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VOLUME II - DESIGN STANDARDS

CHAPTER 1 - GENERAL

A. Location

The location, installation and maintenance of the OWTS and each part thereof shall be such that it will function in a sanitary manner and will not create a nuisance or endanger the quality of any water. Consideration shall be given to the size and shape of the lot, location of building, slope of ground surface, soil depth and character, depth to groundwater, proximity of existing and/or future water supplies and expansion of system or connection to future public wastewater delivery systems.

B. Lot Size

Net useable area shall be identified demonstrating that lot size is sufficient to permit proper location, installation and operation of the OWTS. The average daily quantity of wastewater, the character of surface and subsurface land features, and the source of the water supply will determine the necessary lot size. Minimum lot size as expressed in net area must be sufficient to provide compliance with all setback requirements as defined in these regulations.

C. Design Considerations

Design of the OWTS shall include the following considerations:

1. The OWTS shall be designed to receive all domestic wastewater from the property. No basement, footing or surface drainage or regeneration discharge from water softeners shall be permitted to enter any part of the OWTS.
2. Where all requirements may be met and available area permits, the OWTS shall consist of a standard system.
3. All designs submitted shall contain complete and accurate information to allow the Department to fully evaluate the suitability of the proposed system for the intended site.
4. The minimum number of bedrooms used in sizing an OWTS shall be two (2).

CHAPTER 2 - SITE EVALUATION PROCEDURES

A. General Requirements

Site evaluations for determining the suitability of a parcel for OWTS disposal shall consist of mapping, soil mantle profile testing, percolation testing and/or other site evaluation procedures that may be deemed appropriate by a qualified professional. Testing performed prior to the

adoption of the last revised and adopted version of these regulations may be acceptable if performed and recorded in conformance with the requirements of these regulations.

B. Soil Profile

1. Location

At least four profile holes are required, two in the primary disposal area, and two in the expansion/replacement area.

2. Dimensions

Profile holes must be at least twenty-four (24)-inches wide. A thirty-six (36) inch width is preferred. The hole shall be excavated by mechanical means to a minimum depth of eight (8) feet or practical refusal. On one side of the excavation, a three (3) foot wide "shelf" shall be constructed at a depth between fifty-four (54) and sixty (60) inches. A ramp at a maximum slope of two and one half (2 ½) to one (1) shall be constructed to allow access to the "shelf" area for direct observation of the soil profile. A sketch of a typical profile hole follows. In caving soils the "shelf" and access ramp may be omitted.

Profile-hole development shall comply with safety requirements set forth in Title 8 of the California Code of Regulations.

3. Soil Mantle Log

The qualified professional when applicable shall prepare a detailed and complete log of soil, rock and moisture conditions encountered for each profile hole. United States Department of Agriculture (USDA) classification methods shall be used. Soil samples may be collected as necessary for laboratory analysis.

4. Reporting

A qualified professional when applicable shall submit soil mantle profile testing results to the Department together with the following information:

- a. date of testing.
- b. the approximate location and orientation of each profile.
- c. the slope and direction at each profile.
- d. a description of the prominent soil horizons including depth, estimated volume of rock fragments, texture, color, mottles, structure, field moisture, consistency, presence of clay films, estimated permeability and boundary description for each profile.

- e. estimated effective soil depth of each profile.
- f. estimated or actual depths to temporary and permanent groundwater tables.
- g. The signature and seal of the responsible qualified professional when applicable.

C. Percolation Testing

Following County review of the results and recommendations from the soil mantle profile testing in item C.4., above, the County may waive the requirement for percolation testing. Where percolation testing is waived, OWTS design shall be based on the approved design criteria from the soil mantle investigations. Designers are advised that percolation testing is used as a tool for site evaluation and not necessarily as an absolute rule for justifying the suitability of an area. Modification of the percolation testing depth or procedures may be required in unusual circumstances. When the requirement for percolation testing is not waived, procedures shall conform to the following:

1. Location

A minimum of six percolation tests must be performed including three in the primary area and three in the reserve area. Additional testing may be required when the results of the initial testing indicate highly variable percolation rates.

2. Dimensions

- a. Percolation test holes shall be eight (8) inches in diameter. As near as the actual soil conditions permit, the sidewalls of the test hole shall be vertical and the bottom shall be horizontal.
- b. The depth of a percolation test hole shall be measured from a straight edge placed parallel to the slope of the ground over the center of the hole to the bottom of the hole.
- c. The minimum average hole depth shall be equal to or greater than the maximum disposal system trench depth, measured from the greatest trench sidewall depth. The number of holes deeper than the trench bottom depth shall be equal to or greater than the number of holes shallower than the trench bottom depth.
- d. The minimum depth of an actual test hole placed in the bottom of a larger hole, such as a backhoe cut, shall be twelve (12) inches.

3. Hole Preparation

The bottom and sides of the test hole shall be scarified to remove smears and areas of compacted soil. All loose material shall be removed from the test hole. Either a four (4) inch or six (6) inch diameter perforated pipe shall be centered in the hole and surrounded by pea gravel to a

minimum depth of twelve (12) inches. The pea gravel need not be placed over the bottom of the hole inside the pipe.

4. Presoak

A minimum water depth of twelve (12) inches shall be maintained in the test holes for a minimum of four (4) hours, between twelve (12) and twenty-four (24) hours prior to testing. Water should be added to the hole along the outside of the pipe.

5. Percolation Test Apparatus

Water level readings shall be made using a separate fixed flotation device for each hole. A sketch of one type of device is attached, however, other types of apparatus may be accepted.

6. Test Procedure

The test hole shall be filled / adjusted to a water depth of between six (6) inches and eight (8) inches above the bottom of the hole. Water level readings shall generally be taken and recorded at thirty (30) minute intervals for four (4) hours or until three successive readings vary by no more than one-sixteenth ($1/16$) of an inch. A minimum of three readings shall be taken. The water level shall be adjusted whenever a reading indicates that the water level is less than six (6) inches above the bottom of the hole.

The time interval between measurements may be adjusted to be shorter for faster percolation rates or longer for slower rates to allow the water depth to be maintained between six (6) inches and eight (8) inches above the bottom of the hole.

7. Rate Calculation

The percolation rate is calculated for each test hole by dividing the time interval used between measurements by the magnitude of the smallest of the final three successive readings of water level drop. The calculated results for a percolation rate shall be expressed in terms of mpi.

8. Reporting

a. The percolation data sheet shall, at a minimum, contain the following information:

- (1) Lot number, subdivision and APN.
- (2) Signature and seal of responsible qualified professional and name of person conducting test(s).
- (3) Date of test.
- (4) Depth of holes.

- (5) Units of measurements.
- (6) Gravel-pack pipe size if other than four (4) inch diameter.
- (7) A reasonable method of tabulation for recording the data.
- (8) A brief sketch showing the relative location of the test holes (may be placed on the back of the data sheet) with a tie to a known point (such as a property corner) which will also be referenced on the plot plan.
- (9) Third Party Review.

Third party testing and/or review may be required at the discretion of the Agency Administrator.

CHAPTER 3 - DESIGN DOCUMENTS

A. Mapping

1. Accuracy

All mapping of OWTS areas shall be sufficiently accurate to allow for adequate design, plan review and construction. The minimum accuracy is plus or minus one (1) foot horizontal location and plus or minus one tenth (0.1) foot vertical location. For large parcels [over five (5) acres], less accurate mapping is acceptable for the entire parcel provided more detailed mapping is provided in the immediate area of the building(s) and OWTS.

2. Basis of Plans

While every effort should be made to locate four recorded monuments, a minimum of at least two (2) recorded monuments shall be used as a basis for plan preparation (all recorded monuments shall be designated as being found or not found on the plans).

3. Scale

For parcels less than three-fourths (3/4) acres in size the scale shall be one (1) inch equals ten (10) feet and for all larger parcels the scale may be either one (1) inch equals ten (10) or twenty (20) feet.

4. Contour Interval

Sufficient field survey data shall be taken for the accurate plotting of existing contour lines as follows:

- a. For plans with a one inch equals ten feet (1" = 10') scale and an average slope of less than ten (10) percent, and plans with a one inch equals twenty feet (1" = 20') scale and an average slope less than five (5) percent the contour interval shall be two (2) feet.

- b. Otherwise, the contour interval may be five (5) feet or two (2) feet.
- c. All bench mark location(s) and all established reference points must be accurately noted.

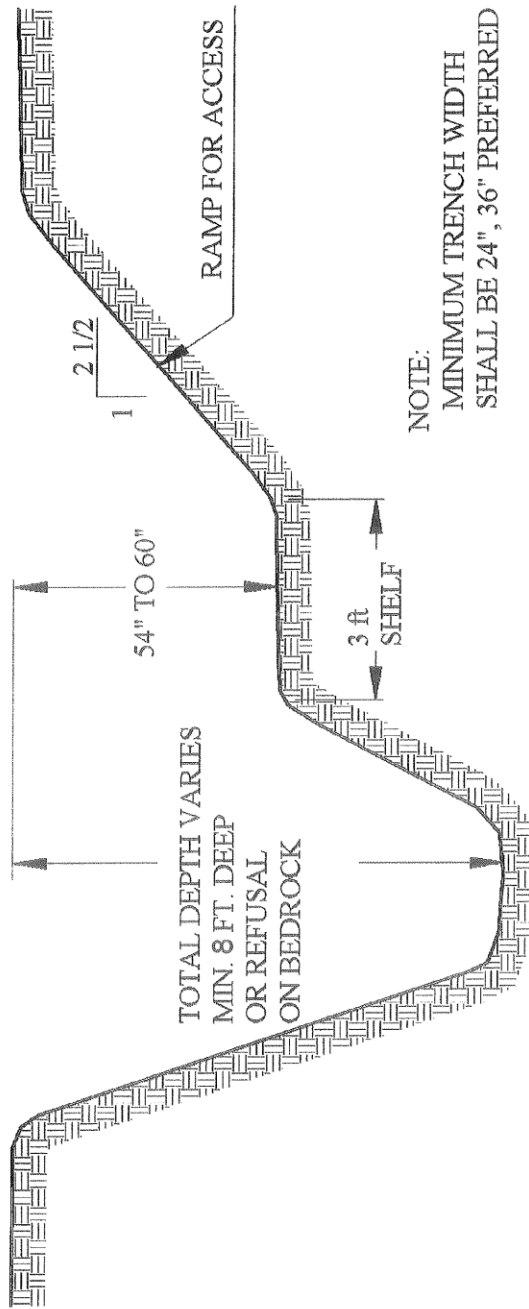
5. Features to Be Identified

- a. Indicate the location of property lines, all profile excavations and percolation tests, easements, proposed wastewater disposal area including expansion area, trees greater than twelve (12) inches in diameter located in the proposed disposal areas, proposed building locations, driveways, edge of paved road(s), and cut banks and fill banks with vertical height noted in one (1) foot increments.
- b. Indicate the location of each of the following which are located on the property or within the distances specified outside of the property lines:

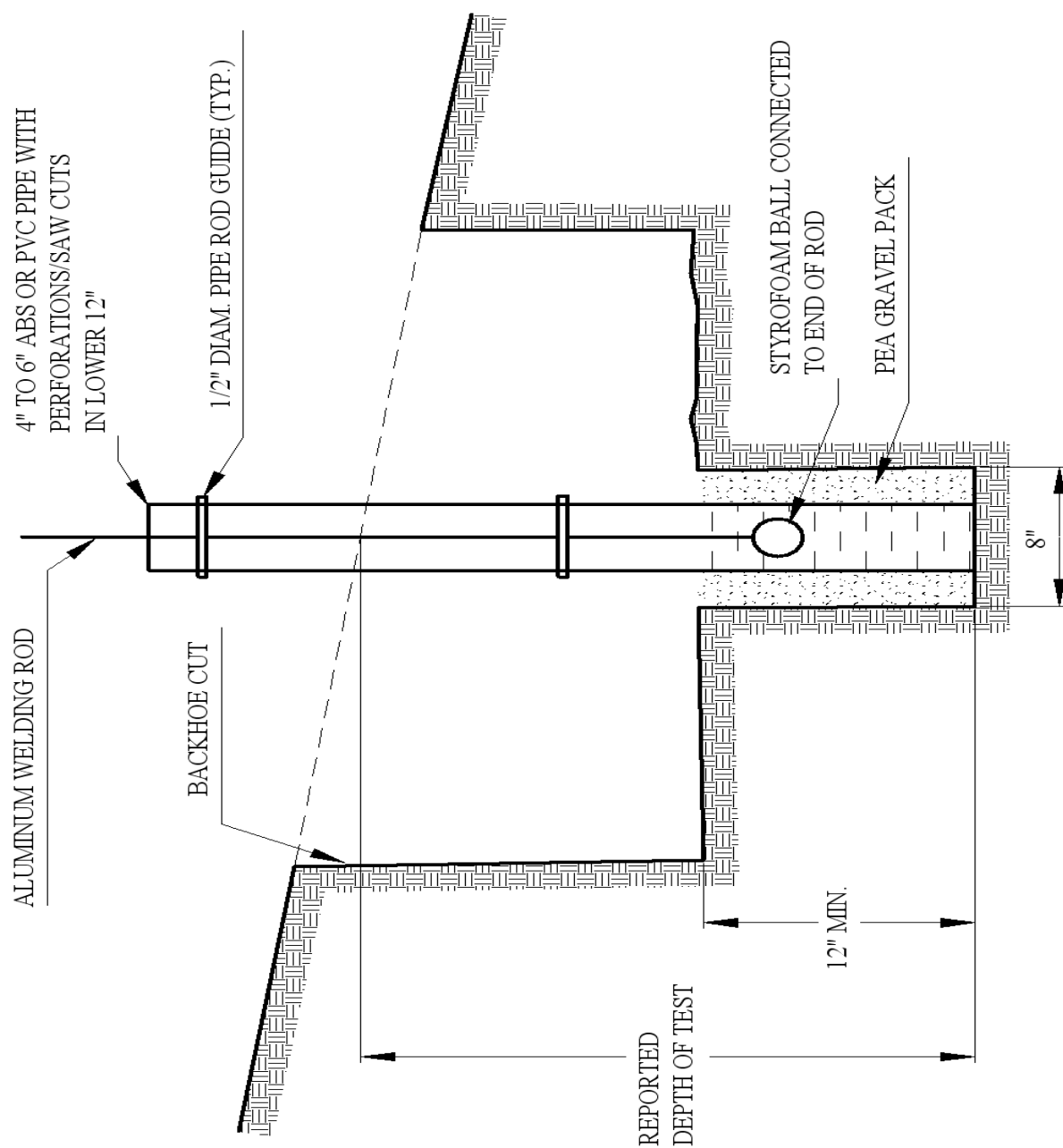
edge of culvert, or seasonal drainage course	50 feet
water supply well	100 feet
pond, lake or reservoir	200 feet
flowing stream or river with pretreatment*	50 feet
flowing stream or river without pretreatment*	100 feet

* Distance to be measured from one-hundred (100) year floodplain if available. In cases where floodplain data is not available, distance to be measured from the known high water mark.

- c. Other surface features on the property or on nearby property which may affect the siting, design or operation of the OWTS.



Calavers County Onsite Wastewater Department
Typical Profile Hole



**Calaveras County
Onsite Wastewater Department
Typical Percolation Test Apparatus**

CHAPTER 4 - ONSITE WASTEWATER TREATMENT SYSTEM COMPONENT DESIGN REQUIREMENTS

A. Building Plumbing

1. All building plumbing shall be installed in accordance with the California Plumbing Code, latest edition, as interpreted by the Calaveras County Building Official.

B. Septic Tanks

1. Plans for all prefabricated septic tanks shall be submitted to the Calaveras County Onsite Wastewater Treatment Department for approval. Such plans shall show all dimensions, reinforcing, structural calculations and such other pertinent data as may be required.

2. All concrete septic tanks intended for use in the County shall be monolithic and shall be constructed of sound durable material. Non-concrete tanks may be constructed of IAPMO approved or equivalent materials not subject to excessive corrosion or decay. All tanks shall be watertight such that when filled to operating depth there is no measurable drop in water surface over a twenty-four (24) hour test period. Each such tank shall be structurally designed to withstand all anticipated earth or other loads and shall be installed level and on a solid bed. In high groundwater areas, septic tanks shall be filled immediately to prevent floatation when empty.

3. The minimum compressive strength of any concrete septic tank wall or floor shall be two-thousand (2,000) pounds per square inch. Concrete septic tank covers shall be reinforced and shall have a minimum compressive strength of twenty-five hundred (2,500) pounds per square inch. All septic tank covers shall be capable of supporting an earth load of not less than three-hundred (300) pounds per square foot when the maximum coverage does not exceed three (3) feet.

4. Septic tanks shall have a minimum of two (2) compartments. The inlet compartment of any septic tank shall not be less than two-thirds ($2/3$) of the total capacity and length of the tank. Access to each compartment shall be provided by a manhole twenty-two (22) inches in minimum dimensions. Access risers to manholes shall extend to the ground surface. The ground surface immediately surrounding the septic tank shall be graded to prevent surface water from ponding over or entering the septic tank.

5. The recommended liquid depth of the septic tank shall be four and one half ($4 \frac{1}{2}$) feet with a maximum depth of six (6) feet. The length of the septic tank shall be at least two (2) times the width. The air space above the liquid depth shall be approximately one (1) foot. There shall be a clearance of two (2) inches between the cover and all partitions and baffles.

6. The specifications and installation procedures for cast-in-place septic tanks shall be determined by a Registered Civil Engineer.

7. A four (4) inch inlet tee shall be vented, sized as per the California Plumbing Code, and shall extend approximately six (6) inches above the water surface and twelve (12) inches below the water surface of the tank.
8. A four (4) inch outlet tee shall be vented, and extend at least six (6) inches above and eighteen (18) inches below the water surface.
9. The invert of the inlet pipe shall be at least two (2) inches above the invert of the outlet pipe.
10. Design of the septic tank shall assure uniform horizontal wastewater flow throughout its entire length. (Side connections to septic tanks may be approved if located within one (1) foot of the end of the tank.)
11. The septic tank shall be at least five (5) feet from a property line or a structure.
12. The septic tank shall be located to provide access for maintenance and cleaning (pumping) equipment.
13. The required minimum capacity of the septic tank for dwellings shall be based on the number of bedrooms contemplated or existing. The following table shall be used for computing septic tank capacities for dwellings.

<u>Number of Bedrooms</u>	<u>Capacity</u>
a. 2–3 bedrooms	1200 gallons
b. 4 bedrooms	1500 gallons
c. 5 bedrooms	2000 gallons

14. Multiple family residences and apartment houses shall have no more than four (4) units per septic tank without approval of a package treatment plant or an engineered system by the County and the Regional Water Quality Control Board – Central Valley Region.
15. Required septic tank size for commercial establishments or multiple family residences shall be one-thousand, five-hundred (1,500) gallons or one-thousand, one-hundred twenty-five (1,125) gallons + $0.75Q$ (where Q equals maximum daily flow), whichever is greater. Large septic tanks [over two-thousand, five-hundred (2,500) gallons] shall be designed to reduce solids washout during peak flows.
16. Where specific flow information is not available, alternative sources of information, including the EPA Manual “Onsite Wastewater Treatment and Disposal Systems”, Appendix I of the latest edition of the California Plumbing Code, Small and Decentralized Wastewater Management Systems by Crites/Tchobanoglous or the following Wastewater Flow Table may be used as guidelines for non-residential establishments:

<u>Type of Establishment</u>	<u>Gallons per Capita per Day (gpcd)</u>
1. Rooming Houses	50 gpcd
2. Boarding Houses	60 gpcd
3. Motels without private baths	50 gpcd
4. Hotels with private baths	60 gpcd
5. Restaurants (use highest figure)	25 gpcd or 75 gal/seat
6. Restaurants and Cocktail Lounges	35 gpcd or 100 gal/seat
7. Bars or Cocktail Lounges	20 gal/seat
8. Tourist Camps with central bath house	60 gpcd
9. Tourist Camps with individual bath units	75 gpcd
10. Luxury Camps	100 gpcd
11. Work or Construction Camps (semi permanent) (per shift)	50 gal/person/shift
12. Day camps (no meals served)	30 gpcd
13. Schools without cafeterias, gyms and showers	30 gpcd
14. Schools with cafeterias, gyms and showers	50 gpcd
15. Boarding Schools	100 gpcd
16. Day Workers at Schools and Office Buildings	30 gpcd
17. Hospitals (per bed)	250 gal/per bed
18. Institutions other than Hospitals (involuntary)	175 gal/per bed
19. Factories per shift, with food facility (exclusive of industrial wastes)	25 gpcd
20. Factories per shift, without food facility (exclusive of industrial wastes)	15 gpcd
21. Picnic Parks (toilet wastes only) (gallons/picnicker)	25 gpcd
22. Picnic Parks w/bath house, showers flush toilets	40 gpcd
23. Swimming pool and bath houses	25 gpcd
24. Country Clubs, per resident member	100 gpcd
25. Motels, per bed	50 gpcd
26. Motels (w/kitchens), per bed	60 gpcd
27. Drive-in Theatres, per car space (including snack bar)	10 gpcd
28. Movie Theatres, per auditorium seat (including snack bar)	10 gpcd
29. Airports, per passenger	50 gal/plumbing fixture
30. Self-service laundries, per machine	400 gal/machine
31. Stores, per toilet fixture (employee and public use)	50 gal/fixture
32. Service Stations (per vehicle served)	10 gpcd
33. Public gathering (auction, ball games, fairs, etc.)	10 gpcd
34. Food Preparation (wholesale)	250 gal/employee/shift
35. Churches – no kitchen	5 gal/seat
36. Churches – with kitchen	10 gal/seat
37. Kennels (use highest total)	16 gal/cage or 10 gal/dog
17. Fiberglass or polyethylene septic tanks shall be IAPMO approved or equivalent.	

18. Installation of Septic Tanks

- a. Tanks are to be installed on a solid base and shall be level. The tank shall have removable covers or manholes and access risers. The combination of tank covers and access risers must be constructed and attached to the tank in such a manner as to preclude infiltration

of surface water into the tank. Risers shall be at least twenty-four (24) inches in minimum dimension and shall be bolted securely in place. All access risers shall have water tight lids that are securely bolted in place. The lids must also prevent release of gases.

- b. The minimum depth of soil cover on a septic tank shall be twelve (12) inches. There is not a maximum depth of soil cover on a septic tank. Depths in excess of thirty-six (36) shall require an assessment by a Registered Civil Engineer.
- c. Backfilling around a septic tank shall be accomplished in a manner to prevent settlement and avoid undue strain on the tank and the pipes entering and leaving the tank. Cast iron pipe or high strength plastic pipe (Sch. 40 PVC or Sch. 40 ABS) shall extend from the septic tank for a distance of at least five (5) feet from the inlet and outlet ends and must be adequately supported to prevent failures as a result of settling.
- d. Fiberglass or polyethylene tanks shall be filled to the top with water to prove water tightness before the tank is backfilled.
- e. Fiberglass or polyethylene tanks shall be installed as per manufacturer specifications and instructions.

19. Destruction of a Septic Tank

When a septic tank is to be destroyed in place, the tank shall be pumped by a County recognized registered pumper. The tank shall then be destroyed in a manner to prevent accumulation of water and backfilled with sand or clean soil.

20. Grease Interceptor

A grease interceptor shall be required whenever any commercial food establishment or any other establishment produces quantities of grease greater than the normal content produced in domestic wastewater. If part of a public wastewater delivery system, the grease interceptor must be approved by the local utility.

C. Disposal Trenches

1. Disposal Trench Configuration

Disposal trenches in the disposal field shall be of the same width and shall meet the following:

- a. Maximum length of individual gravity fed disposal trenches 100'
- b. Minimum width of trench 12"
- c. Maximum grade of gravity fed distribution pipes 3" per 100'
- d. Preferable grade of gravity fed distribution pipes 2" per 100'
- e. Minimum distance between trenches: 10 ft. center to center
 - May be reduced for repairs, minimum distance: 7 ft. center to center

- | | |
|--|-----|
| f. Minimum depth of filter material below distribution pipe | 6" |
| g. Minimum depth of filter material over distribution pipe | 2" |
| h. Minimum soil depth below trench bottom over filter material including capping fill material if any varies with design | |
| i. Minimum depth of soil cover | 12" |
| j. Maximum depth of soil cover | 30" |

Reductions in trench spacing may be considered on a case by case basis by the Agency Administrator.

2. Observation wells

Observation wells shall be placed at each end of each continuous disposal trench. The well shall be solid plastic pipe with cap, a minimum of four (4) inches in diameter and slotted or perforated in the gravel horizon of the trench. The observation well pipe shall extend through drainrock to bottom of trench or bed and also extend a minimum of six (6) inches above finished grade or shall be set slightly below finished grade and marked with a ferrous rod which has a minimum length of twelve (12) inches and a minimum diameter of three-eighths (3/8) of an inch.

3. Distribution Pipes

- a. The perforated distribution pipe for gravity-fed standard OWTS's shall be of four (4) inch inside diameter of Acrylonitrile-Butadiene-Styrene (ABS), clay, concrete, polyethylene (PE), polyvinyl chloride (PVC) (1,000 pound minimum crush) with American Society for Testing and Materials (ASTM) approved and in accordance with California Plumbing Code (CPC) standard, or equivalent.
- b. Perforations shall be five-eighths (5/8) inch diameter and placed down in the trench. Ends of distribution pipe shall be capped.
- c. When pressure pipe is used, it shall be specified by the qualified professional and designed for the particular application with a design pressure rating greater than one and one half (1-1/2) times the maximum working pressure. The minimum standard shall be equal to ASTM schedule 40 PVC. PVC pressure lateral risers (inspection risers) shall be protected by being placed in a sleeve pipe or yard box or shall be set slightly below finished grade and marked with a ferrous rod which has a minimum length of twelve (12) inches and a minimum diameter of three-eighths (3/8) of an inch. Lateral risers shall be equipped with a forty-five (45) degree elbow or sweep.
- d. Distribution pipes shall not be placed under concrete, blacktop, roadway or structures. If necessary to cross under such construction, water tight lines of material acceptable for the house sewer shall be used. Orangeburg pipe or concrete jointed pipe is not acceptable for such crossings.

4. Filter material

Filter material shall be graded and washed rock or other approved material. Not more than five (5) percent by weight shall pass a number ten (10) sieve.

- a. Rock used for filter material shall be three-quarter (3/4) to two and one-half (2-1/2) inches in diameter.
- b. Filter material shall be free of twigs, leaves or other organic debris.
- c. The filter material shall be protected from the soil backfill by untreated building paper, filter fabric or other approved materials.
- d. Before placing filter material in a trench, all smeared or compacted surfaces shall be raked, and loose material removed. Walking in disposal trenches is strongly discouraged as foot traffic can have the effect of compacting infiltrative surfaces impeding permeability.

D. Setback Requirements

1. The minimum setback distance from the components of an OWTS shall be as follows:

Minimum Horizontal Distances Required From	Septic Tank & Other Treatment Units	Disposal Field & Other Disposal Units	Measured From
Any water supply well (private)	100' (1)	100'	Center of well
Any water supply well (public)	150'	150'	Center of well
Water supply pipes (on-site)	10'	10'	Center of pipe
Flowing streams (2)	50'	100' (3)	10-yr flood line
Private lake or reservoir	50'	200' (4)	Normal high water line
Public water supply, lake, reservoir or flowing water body	200'	200' (14)	(high water mark)
Property line < five acres	10'	10' (5)	Edge of tank or trench/bed
Property line > five (5) acres	50' (12)	50' (12)	Edge of tank or trench/bed
Buildings or structures on continuous or pier foundations	5' (13)	10' (6)	Outside edge of foundation
Distribution box	3'	5'	Edge of box
Disposal Field	5'	-	Edge of trench/bed
Seasonal drainage course	25'	50' (7)	Edge of bank
Driveway, patio or other hard surface (9)	- (8)	10 (9)	Edge of feature
Cutbanks	10'	4 x ht. (10)	Top edge of cut
Utility/Road easements	- (11)	- (11)	Outside line of easement
Swimming Pools	10'	25'	Outside edge of pool

Where the effluent disposal area is within 1,200 feet from a public water systems' surface water intake and within the catchment of the drainage, the disposal area shall be no less than 400 feet from the high water mark of the lake, reservoir or flowing water body.

Where the effluent disposal area is located more than 1,200 feet, but less than 2,500 feet from a public water systems' surface water intake and within the catchment area of the drainage, the disposal area shall be no less than 200 feet from the high water mark of the lake, reservoir or flowing water body. All minimum distances shall be measured on the horizontal.

- (1) Setback may be reduced from one-hundred (100) to fifty (50) feet for repairs on parcels developed prior to February 15, 1990.
- (2) Setbacks may be reduced to those associated with a Seasonal Drainage Course provided that the stream does not flow continuously and the upslope drainage basin of the stream is less than six-hundred forty (640) acres.
- (3) The Agency Administrator may approve a setback of fifty (50) feet when the disposal field is preceded by a Department approved pretreatment unit, based upon a written site specific evaluation-provided by a qualified professional.
- (4) Staff may consider/approve a setback of one-hundred (100) feet on a case by case basis. The Agency Administrator may approve a setback of fifty (50) feet when the disposal field is preceded by a Department approved pretreatment unit, based upon a written site specific evaluation provided by a qualified professional.
- (5) When the effective soil depth is less than thirty-six (36) inches, the setback to down slope adjacent parcel property line shall be fifty (50) feet, unless otherwise recommended by a qualified professional based on a site specific evaluation. The Agency Administrator may approve a setback of five (5) feet based upon a site specific evaluation.
- (6) Setback may be reduced to five (5) feet from deck piers. Tanks may be placed on the inside edge of deck piers when it can be demonstrated that there is clearance for servicing of tank and the installation will not compromise the structural integrity of the pier(s) as confirmed by a qualified professional. These shall be considered on a case by case basis only.
- (7) The minimum setback to a naturally occurring seasonal drainage course may be reduced to twenty-five (25) feet when the drainage is routed in non-pressure rated piping (such as corrugated metal pipe). The minimum setback to a man-made seasonal drainage course may be reduced to ten (10) feet when the drainage is routed through an approved high density polyethylene or other approved water tight material. A design for the drainage structure shall be developed by those qualified professionals that are licensed by the State of California to size drainage structures and shall be developed pursuant to the Calaveras County Public Works department standards. A design for the drainage structure shall be submitted together with the OWTS design for review and approval. Agency Administrator may approve a setback of twenty-

five (25) feet when the disposal field is preceded by a Department approved pretreatment unit, based upon a written site specific evaluation provided by a qualified professional.

(8) Septic tanks installed under hard surfaces shall have manhole risers to grade and shall be designed for maximum anticipated vehicle load.

(9) Setback may be reduced to five (5) feet where site/soil conditions are suitable for the installation of a standard system.

(10) For cut-banks where the effective soil depth is less than forty-eight (48) inches the minimum setback shall be fifty (50) feet, unless otherwise recommended by a qualified professional based on a site specific evaluation. For cut-banks where the effective soil depth is forty-eight (48) inches or greater, maximum required setback shall be fifty (50) feet.

(11) Treatment and disposal units shall not be placed in an easement unless otherwise authorized and approved by said utility or other authorized authority.

(12) The agency Administrator may consider/approve a reduction in the 50' setback for repairs on a case by case basis.

(13) Tanks may be placed on the inside edge of deck piers when it can be demonstrated that there is clearance for servicing the tank and the installation will not compromise the structural integrity of the pier(s) as confirmed by a qualified professional.

Reductions in setbacks may be considered on a case by case basis by the Agency Administrator.

E. Distribution Boxes

1. Distribution boxes shall be constructed of concrete, plastic, fiberglass or other decay resistant materials approved by the Department.
2. Distribution boxes, when used, must be set level on a poured concrete pad on undisturbed earth to prevent settling.
3. Distribution boxes shall be watertight, shall be installed to prevent the inflow of surface water, and shall be designed to accommodate the necessary distribution laterals. Boxes shall be specifically designed and installed to achieve uniform flow distribution between all outlets.
4. Outlet inverts shall be at least two (2) inches below the inlet invert.
5. Serial distribution will be accomplished by using twenty-two (22) degree elbows connected to solid crossover pipes to successive-trenches. The bottom of the elbow shall not be at a lower level than the top of preceding distribution pipe. "Drop-box" arrangements may be designed as an alternative for serial distribution.

6. Designs of special distribution structures which require unequal distribution among the various outlets shall include hydraulic computations supporting the design for Department review.

F. Diversion Valves

1. Diversion valves shall be constructed of durable materials and of a design approved by the Department. Valves shall be intended for use with wastewater, shall be corrosion resistant, and shall be watertight.
2. All diversion valves shall have a positive stop at all operating positions (i.e. full-open and full-closed or outlet 1 and outlet 2). A handle position which aligns with the active outlet will comply with this requirement.
3. The manufacturer's name with make and model number shall be displayed on the valve.

G. Interceptor Drains

1. Where interceptor drains are required, complete design plans shall be prepared by a qualified professional and submitted to the Department for review.
2. The bottom of the interceptor drain shall be at least twelve (12) inches below the bottom of the lowest disposal trench or shall extend into a restrictive horizon.
3. The bottom and sides of the interceptor drain closest to the disposal field shall be lined with single ply polyvinyl chloride (PVC) or polyethylene (PE) plastic film which has a minimum thickness of twelve (12) mils.
4. The side of the interceptor drain trench farthest from the disposal area and the top of the drain rock must be lined with an acceptable filter fabric.
5. Four (4) to six (6) inches of clean drain rock or suitable equivalent as approved by the Department shall be placed in the bottom of the trench and perforated pipe sized for local site conditions shall be laid over this with the perforations placed down. Drain rock is placed over the pipe to a depth required by site conditions.
6. Minimum separation shall be maintained between interceptor drains and disposal trenches. In general, the following separations shall be maintained where site conditions allow:
 - a. A minimum clearance of ten (10) feet must be maintained between an upslope interceptor drain and a disposal trench.
 - b. A minimum clearance of twenty-five (25) feet must be maintained between a laterally located interceptor drain and a disposal trench.

- c. A fifty (50) foot minimum separation is required for a down-gradient interceptor drain to prevent infiltration of the drain with septic tank effluent.
- d. Local site conditions may require a larger separation. The setbacks required in G.6 a, b and c above may be reduced based on a qualified professional's recommendation following a site specific evaluation.
- e. Down-gradient interceptor drains on slopes over ten (10) percent are generally not appropriate.
- f. The qualified professional shall provide supporting documentation for the design.

7. House downspouts and drainage from paved areas shall be connected to the interceptor drain whenever possible.

8. The interceptor drain shall discharge by gravity to the surface and shall include energy dissipation considerations to prevent local erosion. The outlet shall be designed for ease of sampling the discharge, and shall be equipped with a perforated cap, stainless steel screening or other method to preclude entry of rodents or other small animals.

9. The applicant is solely responsible to obtain any other permits or approvals which may be necessary due to construction of any interceptor drain systems.

H. Surface Drainage Diversions

1. For disposal trenches designed in concave land forms or in areas where there is less than forty-eight (48) inches of effective soil depth, surface diversion ditches shall be designed to intercept sheet flow runoff from above the disposal field to reduce saturation conditions in the disposal area.

2. Surface diversion trenches shall be designed to minimize erosion.

3. Roof leaders, downspouts, irrigation systems, or other sources which concentrate water shall be diverted away from disposal areas.

- 5. The applicant is solely responsible to obtain any other permits or approvals which may be necessary due to construction of any surface drainage diversion systems.

I. Dosing Chambers

1. Dosing chambers shall be monolithic, watertight and constructed of corrosion resistant, durable materials as approved by the Department. Chambers shall be designed for the soil and groundwater conditions at the intended site, including buoyant conditions when the chamber is empty.

2. Inlet and outlet materials shall be schedule 40 PVC, ductile iron or other durable material approved by the Department. Inlets and outlets shall be supplied with a rubber or neoprene gasket or grommet.
3. Each dosing chamber shall have a watertight riser extending to the ground surface with a minimum dimension of twenty-four (24) inches. The risers shall be centered over an access manhole with a minimum dimension of twenty-two (22) inches.
4. The local ground surface shall be graded to prevent surface water from entering the access riser.
5. Dosing chambers fitted with one or more pumps shall have a volumetric capacity sufficient to deliver the design dose between the "pump on" and "pump off" levels. An audio-visual high water alarm shall be provided above the "pump on" level. A reserve capacity (emergency storage) shall be provided above the high water alarm level. The minimum reserve capacity shall be determined by the qualified professional on a design specific basis. Use of the reserve capacity shall not cause the tank to overflow or a backwater condition in the building sewer.
6. When the septic tank is proposed to be directly equipped with one or more pumps or a siphon for dosing, the septic tank shall be oversized to provide minimum septic tank volumes below the "dose off" level. The baffle dividing the two septic tank chambers shall be designed such that the dose drawdown is limited to the outlet chamber.
7. A dose counting device shall be provided with all dosing systems.
8. All supplemental treatment systems shall have a separate pump tank. The tank shall be not less than one-thousand (1000) gallons to allow for emergency storage. The storage capacity may be reduced when a tank is integrated as part of the supplemental treatment unit. These shall be considered on a case by case basis only.

J. Effluent Pump, Controls and Alarms

1. All electrical components used in OWTS's shall comply with the California Electrical Code and the requirements of the Calaveras County Building Department.
2. Pumps shall be rated for wastewater application.
3. Motors shall be rated for continuous duty and shall be provided with overload protection.
4. Submersible pumps shall have a non-corrosive lifting device to allow ease of removal and service without requiring entry into the pump chamber.
5. Pumps shall be equipped with non-clog impellers capable of passing a 3/4 inch solid sphere or shall be protected by a cylinder of corrosion resistant screen extending above the maximum effluent level with one-eighth (1/8) inch maximum openings or other approved method.

6. Pumps and alarms shall be activated by sealed float switches, or other reliable devices approved by the Department. Control floats shall be set such that the volume discharged during each pump cycle is between fifteen (15) and fifty (50) percent of the design daily flow unless otherwise dictated by the design of the disposal system.
7. Alarms shall be provided for high water level and may be provided for low water level and various pump malfunction conditions such as pump seizure or overheating.
8. Alarms shall be both audible and visual. Audible alarms may be user cancellable. Visual alarms shall require a working knowledge of the control system to cancel such as would be possessed by a qualified service technician.
9. The alarm annunciator panel shall be located in or adjacent to the building which the pump system services. The panel shall also be visible and audible from the same structure. If the system control panel is outdoors, it shall be in an enclosure appropriately rated by the National Electric Manufacturer's Association.

K. Capping Fills

1. For the purpose of these regulations, "Capping Fill" means a modification to a disposal trench system by which the minimum required soil cover backfill, twelve (12) inches is obtained by adding soil above the original ground surface in the disposal area.
2. Capping fills may not be placed on slopes exceeding twenty-five (25) percent. A maximum of thirty (30) percent may be considered on a case by case basis when a capping fill is designed by a qualified professional and when the design includes approved erosion control measures and slope stability.
3. Percolation testing shall be performed a minimum of six (6) inches below the proposed trench bottom.
4. The minimum depth of a capping fill is three (3) inches. The typical depth is twelve (12) inches, unless unusual site conditions justify differing depths up to a maximum of thirty (30) inches.
5. A capping fill shall extend full depth a minimum of five (5) feet upslope or laterally, and a minimum of ten (10) feet down-slope from the outside edge of the disposal trench.
6. The qualified professional shall specify and verify acceptable soil texture for capping fills, and shall specify site preparation and other construction details necessary to ensure proper installation.
7. The perimeter of capping fills shall be smoothly graded to blend with native soil.
8. Material for capping fills shall not be obtained from the designated expansion area, or from down-slope of primary and expansion areas.

CHAPTER 5 - STANDARD SYSTEM DESIGN

A. Description

A standard OWTS serves a single family residence and consists of the building sewer, a septic tank, a distribution unit, a gravity-fed standard disposal field with observation pipes, and a pre-identified area which will accommodate a one-hundred (100) percent replacement of the disposal field, meeting all site conditions and setback requirements. Standard systems may include a capping fill. See Standard system and Expansion/Replacement area definitions.

B. System Components

1. Standard Trench

- a. The standard trench design typically consists of a trench two (2) feet wide by three (3) feet deep with one and one half (1-1/2) foot sidewall depth below the distribution pipe.
- b. Percolation testing may substantiate greater or lesser trench length.

2. Site Criteria

- a. Well drained, stable, convex or moderately concave slopes.
 - b. Slopes \leq 30%.
 - c. Able to meet all setback requirements.
 - d. Vertical separation requirements listed below.

<u>Lot size</u>	<u>Depth below trench bottom to</u>		
	<u>Restrictive Layer</u>	<u>Temporary Water</u>	<u>Permanent Water</u>
Less than 2 acres with community water or 1 to 5 acres with well	36"	30"	60"
Two acres and larger with community water or 5 acres and larger with well	24"	30"	60"

3. Design Application Rate

Where percolation testing is performed, the design application rate shall be as follows:

Percolation Rate (mpi)	Application Rate (gpd/ sq.ft.)
<1	Not suitable
1 - 5*	0.8
6-15	0.8
16-30	0.8 – 0.6 graduated
31-60	0.6 – 0.45 graduated
61-120	0.45 – 0.2 graduated
>120	Not suitable

*Not suitable without County approval of a report as submitted by a qualified professional on potential groundwater impacts.

4. Length of Disposal Trench

The minimum total length of disposal trench provided shall be determined by the following method:

- a. Sixty-seven (67) lineal feet per bedroom if no percolation tests are required.
- b. When percolation tests are required, the length shall be determined by the following formula:

$$L = \frac{Q}{q \times a}$$

L = Minimum total length of disposal trench in feet.

Q = Daily wastewater flow in gallons per day.

q = Application rate in gallons per day per square foot of effective seepage area.

A = The effective seepage area per foot of trench. The maximum value of “A” allowed is five (5) square feet per lineal foot, except for the repair or replacement of an existing disposal system which utilizes gravity trenches sized by the Department.

Length of trench is determined by the inclusion of sidewall and bottom area for purposes of absorption. Sixty-seven (67) lineal feet is based upon the five (5) square feet per lineal foot value.

C. Construction Inspections/Observations

1. Construction verification inspections shall be performed by the Department. The applicant shall coordinate with the Department to determine when inspections will be required, and provide at least twenty-four (24) hour advance notice of any required inspections.

2. At the applicant's discretion and cost, a qualified professional may be retained to observe and certify system construction. A qualified professional shall be retained to perform construction observations and to provide certification on substantial conformance to the approved design for all qualified professional designed systems. Twenty-four (24) hour notice shall still be provided to the Department in advance of burying any system features.

3. In addition to the site investigation profile inspection, the Department shall perform verification at an open trench inspection and at a final inspection.

4. All specified materials (i.e., tank, rock, and pipe, etc.) must be onsite and the tank(s) in place at the time of open trench inspection. Additionally, designs requiring drainage alteration must have all alteration excavations completed and all materials for the alteration onsite at the time of inspection.

5. Final inspections and observations shall be performed following OWTS completion and prior to use.

6. Each required inspection shall be recorded on the project inspection record (yellow card) with the County inspector and qualified professional recording signature and inspection and observation dates in the appropriate spaces on the card (to eliminate uncertainty about which inspections and observations have been performed).

D. Modified Standard System

1. For the purpose of these regulations, a "Modified Standard System" means an OWTS consisting of a septic tank, distribution unit and gravity-fed disposal, trenches with a minimum of six (6) inches of filter material below the distribution pipe and a minimum of two (2) inches of filter material and twelve (12) inches of soil backfill above the distribution pipe. The system may be redundant or may include an effluent pump, and interceptor drain or a capping fill.

2. Minor modifications to a standard OWTS may be made for effective depth, use of a capping fill, installation of a redundant system or use of a pump system to transport effluent to a gravity fed disposal field located upslope of the septic tank without requiring engineered OWTS design. The variations may be approved by the Department subject to findings of suitable site conditions to support these minor modifications.

CHAPTER 6, - ENGINEERED SYSTEMS

A. General

1. All engineered OWTS designs shall be prepared by a Registered Civil Engineer, a Registered Environmental Health Specialist or a Certified Engineering Geologist. Soil mantle and percolation testing may be performed by a Registered Geologist in addition to the above professions.

2. Engineered OWTS designs shall be based on site specific soil conditions. Where initial testing reveals highly variable physical conditions between profile holes or between percolation test results, additional testing may be required.

3. All engineered OWTS designs shall include provisions for system monitoring (disposal trench observation pipes, groundwater monitoring wells, etc.) sufficient to provide information on system operation. System specific homeowner operation and maintenance guidelines shall be submitted. These guidelines shall include homeowner procedures to ensure maintenance, repair, or replacement of critical items within 48 hours following the OWTS failure.

4. Since engineered designed systems are frequently installed in areas with shallow or less permeable soil characteristics, care must be exercised during installation to avoid damage to the effective seepage area. An OWTS shall not be installed when the installation methods and soil moisture conditions cause smearing or streaking of the disposal trench sidewall or bottom, or excessive compaction of soils in the disposal area.

5. All advanced treatment systems shall be designed, installed and maintained pursuant to manufactures specifications and requirements.

6. Qualified Professional Observations

- a. All engineered OWTS installations shall be observed by a qualified professional. All engineered OWTS design submittals shall include the qualified professional's recommended observation schedule, including key points of construction where notification to the County will be given to allow for County verification of compliance. The Agency Administrator shall review and approve the observation schedule as a part of the design. A minimum of a twenty-four (24) hour notice shall be given to the County for all verification observations required in the approved inspection schedule.
- b. In addition to the soil profile evaluation, the qualified professional shall provide engineered OWTS observations for the following stages of construction:
 - a. System layout
 - b. Open trench/bed rip observation
 - c. Mechanical/electrical performance observation (where applicable)
 - d. Uniform distribution observation (where applicable)
 - e. Final observation of the completed system
- c. At a minimum the County shall be given twenty-four (24) hour notice of the open trench and final observations to provide verification.
- d. Department final inspection of a completed engineered OWTS shall be performed following submittal of a letter of certification from the qualified professional stating the OWTS was observed by the qualified professional and was found to be in substantial conformance with approved plans.

- e. Engineered systems must be constructed as specified on plans. If deviation from approved plans is necessary, the qualified professional must concur with the changes and must submit a letter of concurrence with revised plans and revision fee payment. Construction may continue only after Department review of revised plans is completed.

B. Modifications that Require Engineered Design

Modifications to a standard OWTS which include interceptor drains, pressure distribution or other features shall be designed and reviewed as engineered systems.

C. At-Grade Bed System

1. An At-Grade Bed OWTS is designed to uniformly distribute septic tank effluent under pressure to a disposal bed which has a minimum of six (6) inches of filter material below, and two (2) inches of filter material and a minimum of twelve (12) inches of soil cover above the distribution lateral(s). (See the following Typical At-Grade Bed cross section figure).

2. To be considered suitable for an at-grade bed OWTS, the site must have the following characteristics:

- a. A well drained, stable, linear to convex slope.
- b. A slope of twenty-five (25) percent or less.
- c. Able to comply with all setback requirements.

3. Have a percolation rate less than sixty (60) mpi, determined from testing conducted at a minimum depth of twenty-four (24) inches below the original ground surface.

4. Able to comply with the following vertical separation requirements.

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<u>Depth below bottom of bed to</u>			
<u>Lot size</u>	<u>Restrictive Layer</u>	<u>Temporary Water</u>	<u>Permanent Water</u>
Less than 2 acres with community water or 1 to 5 acres with well	36"	30"	60"
Two acres and larger with community water or 5 acres and larger with well	24"	30"	60"

3. Required disposal bed length shall be calculated using the following formula:

$$L = \frac{Q}{q \times w}$$

Q = Daily wastewater flow in gallons per day.

q = Application rate in gallons per day per square feet of disposal area.

w = The width of the disposal bed down-slope of the distribution lateral.

4. Where percolation testing is performed, the design application rate shall be as follows:

<u>Percolation Rate</u> (mpi)	<u>Application Rate</u> (gpd/sq. ft.)
<1	Not Suitable
1 – 30	0.6
31 - 60	0.6 – 0.45 graduated
>60	Not Suitable

5. The gravel bed shall extend a minimum distance of one and one half (1 1/2) feet upslope of the distribution lateral.

6. An acceptable filter fabric shall be placed between the gravel bed and soil cover.

7. The qualified professional shall specify and verify acceptable texture for soil cover, and shall specify site preparation and other construction details necessary to insure proper installation and erosion control.

8. The minimum depth of soil cover over the disposal bed shall be twelve (12) inches. The soil cover shall extend full depth a minimum of five (5) feet upslope or laterally, and a minimum of ten (10) feet down-slope from the outside edge of the bed.

9. Borrow areas shall be designated on the plans if soil cover material is to be obtained on site. Soil cover material shall not be obtained from the designated expansion area, or within fifty (50) feet down-slope of primary and expansion areas. Pursuant to Section 15.05.080 (F) of County Code, on site borrow areas are exempt from securing a grading permit however, best management practices shall be maintained pursuant to Section 15.05.170.

10. A one-hundred (100) percent expansion area shall be provided.

11. At-grade bed systems shall be constructed only when the soils are sufficiently dry to resist compaction and loss of structure when worked.

12. The 2000 "WISCONSIN AT-GRADE SOIL ABSORPTION SYSTEM SITING, DESIGN, AND CONSTRUCTION MANUAL" is recognized by the Department as an acceptable design reference, with the exception of specific conflicting requirements listed above.

D. Mound System

1. A "Mound System" is designed to uniformly distribute septic tank effluent under pressure to a disposal bed raised above the native ground with a minimum of twenty-four (24) inches of medium sand below the distribution bed and six (6) inches of filter material below, and two (2) inches of filter material and a minimum of six (6) inches of soil cover above the distribution laterals. (See the following typical mound cross section figure.)

2. To be considered suitable for a mound system, the site must have the following characteristics:

- a. A well drained, stable, linear to convex slope.
- b. A Slope of fifteen (15) percent or less.
- c. Able to comply with all setback requirements, including an additional ten (10) foot setback between a building and the toe of an upslope mound for a total of twenty (20) feet.
- d. Have a percolation rate less than sixty (60) mpi, determined from testing conducted at a minimum depth twenty-four (24) inches below the original ground surface.
- e. Able to comply with the following vertical separation requirements.

Depth below bottom of mound to

<u>Lot size</u>	<u>Restrictive Layer</u>	<u>Temporary Water</u>	<u>Permanent Water</u>
Less than 2 acres with community water or 1 to 5 acres with well	24"	18"	48"
Two acres and larger with community water or 5 acres and larger with well	24"	18"	48"

3. The maximum application rate used to size the distribution bed within the medium sand fill shall be one and two tenths (1.2) gallons per day per square foot based on bottom area only.

4. The required mound basal area shall be calculated using the following formula:

$$A = \frac{Q}{\dots}$$

q

Where:

A = Mound basal area in square feet and is the product of the length of gravel bed multiplied by the width of the gravel bed plus the horizontal distance between the gravel bed and the down-slope toe of the sand fill.

Q = Daily wastewater flow in gallons per day.

q = Application rate in gallons per day per square foot of mound basal area.

5. Where percolation testing is performed the design application rate shall be as follows:

<u>Percolation Rate</u> (mpi)	<u>Application Rate</u> (gpd/sq. ft.)
<1	Not suitable
1 - 30	0.6
31 - 60	0.6 - 0.45 graduated
>60	Not suitable

6. The slope of the sand fill from the top of the gravel bed to the ground surface shall not exceed three (3) to one (1).

7. An acceptable filter fabric shall be placed between the gravel bed and soil cover.

8. The minimum depth of soil cover over the sand fill and at the edge of the distribution bed shall be six (6) inches. Soil cover at the center of the distribution bed shall be sufficiently greater to provide positive drainage from the mound body.

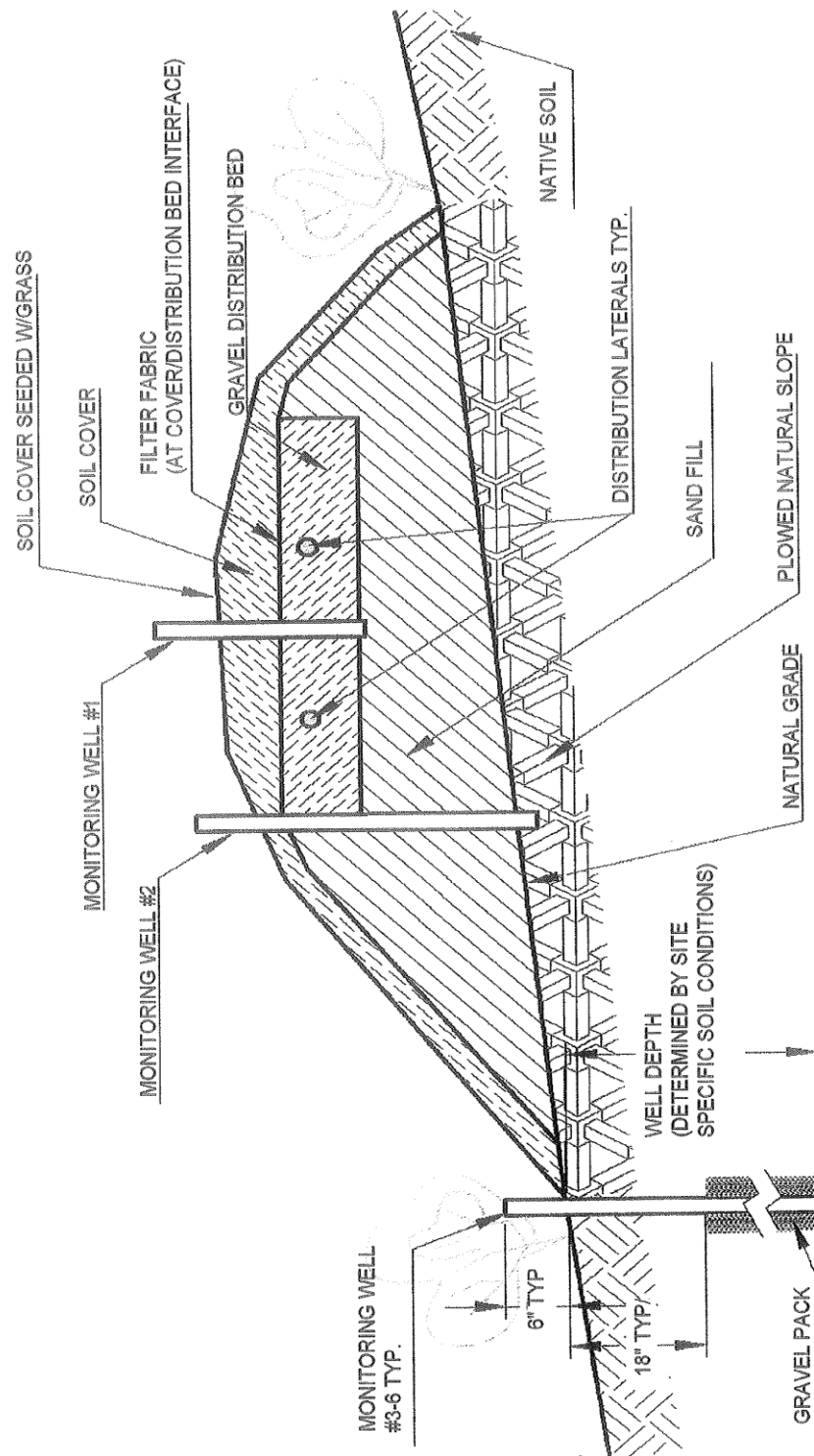
9. The qualified professional shall specify and verify acceptable texture for soil cover, and shall specify site preparation and other construction details necessary to insure proper installation and erosion control.

10. Borrow areas shall be designated on the plans if soil cover material is to be obtained on site. Soil cover material shall not be obtained from the designated expansion area, or from down slope of primary and expansion areas.

11. Mound systems shall be constructed only when the soils are sufficiently dry to resist compaction and loss of structure when worked.

12. A one-hundred (100) percent expansion area shall be provided.

13. The "WISCONSIN MOUND SOIL ABSORPTION SYSTEM SITING, DESIGN AND CONSTRUCTION MANUAL" dated January, 2000 is recognized by the Department as an acceptable design reference, with the exception of specific conflicting requirements listed above.



NOT TO SCALE

CALAVERAS COUNTY
ONSITE WASTEWATER DEPARTMENT
TYPICAL MOUND CROSS SECTION

E. Gravel Filled Pressure Distribution System

1. A "Gravel Filled Pressure Distribution System" is designed to uniformly distribute septic tank effluent under pressure to disposal trenches having a minimum of six (6) inches of filter material below the distribution lateral and a minimum of two (2) inches of filter material and twelve (12) inches of soil cover above the distribution lateral. The system may be redundant or may include an interceptor drain or a capping fill.
2. To be considered suitable for a gravel filled pressure distribution system, the site must have the following characteristics:
 - a. A well drained, stable, convex or moderately concave slopes.
 - b. A slope of forty (40) percent or less.
 - c. Able to comply with all setback requirements.
3. For slopes in excess of thirty (30) percent, the maximum percolation rate measured at trench bottom shall be sixty (60) mpi.
4. For slopes less than thirty (30) percent, the maximum percolation rate measured at trench bottom shall be one-hundred twenty (120) mpi.
5. For systems with less than twelve (12) inches of filter material below the distribution lateral, percolation tests shall be conducted a minimum of six (6) inches below trench bottom when allowed for by the local geology.
6. Vertical separation requirements are listed below:

<u>Depth below trench bottom to</u>			
<u>Lot size</u>	<u>Restrictive Layer</u>	<u>Temporary Water</u>	<u>Permanent Water</u>
Less than 2 acres with community water or 1 to 5 acres with well	30	30"	60"
Two acres and larger with community water or 5 acres and larger with well	24"	30"	60"

7. The required length of trench for a gravel filled pressure distribution system shall be determined in the same manner as for a standard system.
8. A one-hundred (100) percent expansion area located upslope of, or on contour with, the proposed disposal system shall be provided. If a gravel-filled pressure distribution system is used

on a site with conditions suitable for the installation of a standard system and the parcel was created prior to March 9, 1981, the minimum required expansion area shall be fifty (50) percent area.

F. Sand Filled Pressure Distribution System

1. A "Sand Filled Pressure Distribution System" is designed to uniformly distribute septic tank effluent under pressure to disposal trenches having a minimum of twelve (12) inches of medium sand and six (6) inches of filter material below, and two (2) inches of filter material and twelve (12) inches of soil cover above the distribution lateral. The system may be redundant or may include an interceptor drain or a capping fill.

2. To be considered suitable for a sand filled pressure distribution system, the site must have the following characteristics:

- a. A well drained, stable, moderately concave or convex slope.
- b. A slope of forty (40) percent or less.
- c. Able to comply with all setback requirements.

3. For slopes in excess of thirty (30) percent, the maximum percolation rate measured at trench bottom shall be sixty (60) mpi.

4. For slopes less than thirty (30) percent, the maximum percolation rate measured at trench bottom shall be one-hundred twenty (120) mpi.

5. For systems with capping fill, percolation testing shall be conducted a minimum of six (6) inches below trench bottom.

6. Vertical separation requirements are listed below.

<u>Depth below trench bottom to</u>			
<u>Lot size</u>	<u>Restrictive Layer</u>	<u>Temporary Water</u>	<u>Permanent Water</u>
Less than 2 acres with community water, or 1 to 5 acres with well	24"	30"	60"
Two acres and larger with community water or 5 acre and larger with well	24"	30"	60"

7. Disposal Trench Sizing Criteria

<u>Percolation Rate</u> (mpi)	<u>Design Application Rate</u> (gpd/sq. ft.)
Less than 60	0.45
60 - 120'	0.45 – 0.2 (graduated)

8. For design purposes the maximum effective seepage area shall be four (4) square feet per lineal foot of trench.

9. A one-hundred (100) percent expansion area shall be provided. The expansion area should be located upslope of, or on contour with, the proposed distribution system.

G. Advanced Treatment Systems with Pressure Distribution Trenches

1. Recognized Advanced Treatment Systems include Intermittent Sand or other Supplemental Treatment System as approved by the Department. Other Advanced Treatment Systems may include, but are not limited to, aerobic systems as considered by the Department on a case by case basis.

An Advanced Treatment System with Pressure Distribution Trenches” includes gravel filled pressure distribution systems and recognized Advanced Treatment Systems designed to filter and biologically treat septic tank effluent for purposes of reducing constituents commonly found in effluent as defined in these regulations.

Advanced Treatment Systems are used in conjunction with disposal fields where site and soil conditions are not adequate for standard or engineered systems. These conditions include, but are not limited to, slowly permeable soils, inadequate depth of effective soil below trench bottom, and/or inadequate depth to groundwater below trench bottom.

Supplemental Treatment Systems that have been approved by state or nationally recognized testing agencies (NSF Standard 40 or equivalent) may be approved if they have been found to adequately protect surface water and groundwater quality and preclude health hazards and nuisances. All supplemental treatment units shall meet a 50 percent reduction in total nitrogen when comparing the 30-day average influent to the 30-day average effluent. Supplemental treatment units designed to perform disinfection shall provide sufficient pretreatment of wastewater so that effluent does not exceed a 30-day average Total Suspended Solids (TSS) of 30 mg/L and shall further achieve an effluent fecal coliform bacteria concentration less than or equal to 200 Most Probable Number (MPN) per 100 millimeters.

Allowable types of Supplemental Treatment Systems are as follows: textile filters, intermittent sand filters, recirculating sand filters and aerobic treatment units. Specific Supplemental Treatment Systems are subject to county approval

2. To be considered suitable for an Advanced Treatment System with pressure distribution trenches, the site must have the following characteristics:

- a. A well drained, stable, moderately concave or convex slope.
- b. A slope of thirty (30) percent or less when the percolation rate equals or exceeds sixty (60) mpi and a slope of forty (40) percent or less when the percolation rate is less than sixty (60) mpi.
- c. Able to comply with all setback requirements.
- d. A percolation rate less than two-hundred forty (240) mpi conducted at trench bottom. For systems with capping fill the test shall be conducted a minimum of six (6) inches below trench bottom.

3. Vertical separation requirements are listed below.

<u>Depth below trench bottom to</u>			
<u>Lot size</u>	<u>Restrictive Layer</u>	<u>Temporary Water</u>	<u>Permanent Water</u>
Less than 2 acres with community water, or 1 to 5 acres with well	12"	24"	36"
Two acres and larger with community water or 5 acres and larger with well	6"	24"	36"

4. Disposal trench sizing criteria

<u>Percolation Rate</u> (mpi)	<u>Design Application Rate</u> (gpd/sq. ft.)
Less than 30	0.6
31-60	0.6 – 0.45 (graduated)
61-120	0.45 – 0.2 (graduated)
121-240	0.2 – 0.1 (graduated)

The Agency Administrator may approve a twenty-five (25) percent maximum increase in the above specified application rate based on a written site specific evaluation provided by a qualified professional.

- 6. A one-hundred (100) percent expansion area shall be provided.

H. Temporary Individual OWTS's

1. General Bond

- a. Temporary OWTS's may only be used on an interim basis for a period not to exceed one year. Such systems may include but are not limited to chemical toilets.
- b. An OWTS Permit is required prior to construction. Said permit is discretionary and may be issued only after review and approval by the Agency Administrator.
- c. Location of temporary systems shall be such that they cannot discharge, flow, seep or drain into any surface or groundwater or water intended for human or animal consumption. The following minimum distances shall be maintained:

(1) From any well	100 feet
(2) From any dwelling	50 feet
(3) From any property Line	10 feet
(4) From water table (temporary or permanent)	15 feet

2. Chemical Toilets

- a. Chemical toilet facilities shall provide sufficient space for comfortable use, a minimum area of eight (8) square feet with a minimum width of two and one-half (2-1/2) feet, shall be provided for each toilet seat. A minimum area of ten (10) square feet with a minimum width of two and one-half (2-1/2) feet, shall be required when a urinal is included. Sufficient additional space shall be included if hand washing facilities are within the facility.
- b. Chemical toilets shall be designed, constructed and maintained so as to prevent the access of flies.
- c. The inside surfaces of all chemical toilets shall be of durable, non-absorbent material, smooth, easily cleanable and finished in a light color.
- d. Chemical toilets shall be ventilated and provided with self closing doors, lockable from the inside.
- e. The tanks for chemical toilets shall be constructed of durable, easily cleanable material. Tank size shall be sufficient to contain the initial chemical charge and provide capacity for at least one day's use for forty (40) persons. Size and construction shall be such as to prevent splashing on the occupant, field or road while being transported. A minimum tank capacity of forty (40) gallons shall be provided.
- f. Chemicals capable of controlling odors and liquefying solids shall be used in chemical toilets.

- g. Disposal of contents of chemical toilets shall be into a wastewater treatment plant, or at a disposal site approved by the Director of Environmental Health a copy of a haulers registration to dispose of waste must be on file with the Environmental Health Department prior to the rental of any toilets in Calaveras County.
- h. Chemical toilets shall be maintained in a clean and sanitary manner, free of odor and stains.
- i. Each chemical toilet must be identified with the name of the company and telephone number. The lettering shall be at least three (3) inches in height and contain other information as may be required by the Director of Environmental Health.
- j. Chemical toilets must be stored at a site approved by the Director of Environmental Health.
- k. Pumper trucks must comply with California Health and Safety Code requirements for septic tank pumpers.

I. Package Wastewater Treatment Plants

1. Where effluent exceeds 2,500 – 3,000 gallons per day and package wastewater treatment plants are utilized, complete engineered plans shall be submitted by a Registered Civil Engineer to the Department for approval prior to beginning construction. Final approval of plans for package wastewater treatment plants may not be granted until a report of waste discharge has been filed with the Regional Water Quality Control Board - Central Valley Region and waste discharge requirements have either been adopted or waived. These plans shall include the following where applicable:

- a. A complete scaled plot plan of the proposed initial and future service areas showing wells, structures, sanitary wastewater lines, water lines, improved drainage facilities, topography, surface water features, and proposed land use.
- b. Total hydraulic capacity of the plant in gallons per day and treatment capacity expressed as oxygen demand and solids loading in pounds per day. Design criteria shall include a reserve capacity to accommodate a surge flow or increase in peak daily flow as well as the average daily flow.
- c. Calculations demonstrating ability of effluent to meet discharge standards as set by the Regional Water Quality Control Board - Central Valley Region.
- d. The source of data and the data calculated to determine plant capacity. Any future connections to the existing plant or any future expansion of the plant shall be shown on the plans.
- e. The percolation rates of disposal fields shall be calculated and figures shown on the plans. An expansion area equal in size to the original disposal field shall be so designated on the plan to be utilized in the event of failure of the original disposal fields. This

expansion area shall pertain to percolation ponds or evaporation ponds as well as subsurface disposal fields.

- f. A hydrologic balance for ponds, lagoons or disposal areas.
- g. Detailed operation and maintenance instructions and a list of similar installations including contact persons and telephone numbers.

2. When any existing package wastewater treatment plant is remodeled or altered, or when the quantity or quality of the wastewater treated changes, all of the above specifications are to be resubmitted for approval by the Department and the Regional Water Quality Control Board - Central Valley Region.

3. Mechanical and electrical equipment shall be of such durable hardware, workmanship and installation as to insure against operational failure with normal maintenance.

4. All installations shall be adequately protected against acts of vandalism or sabotage which could result in a malfunction of the plant. The entire plant, including any polishing ponds, percolation ponds and above ground irrigation systems shall be fenced and a locked gate provided to protect against any unauthorized person gaining entrance into the plant area which could lead to injury or loss of life.

5. A certified operator with skill to cause the plant to be operated as designed shall be available to operate the plant. The operator shall be certified by the State of California Water Resources Control Board-Division of Water Quality Control. The name, operator grade and certificate number of the person identified as the operator shall be submitted prior to initial plant start-up.

6. Installation of the plant, storage area and disposal system shall be under OWTS Permit and inspection by the Department. The engineer will be required to certify that the plant was installed properly.

7. The installation and operation of treatment plants shall not create a public nuisance in regard to odor nor cause a potential or immediate safety or health hazard to the public. The discharge of treated effluent shall not cause contamination of any groundwater or surface water.

8. Final disposition of wastewater effluent shall be in constant compliance with the discharge requirements set by the Regional Water Quality Control Board - Central Valley Region. Any deviation from these discharge requirements shall be declared a public nuisance and a violation of these Rules and Regulations.

9. Package wastewater treatment plant tanks are to be installed to required slope and elevation on properly installed foundations to prevent settling which may cause malfunction or leaking.

10. A grease interceptor shall be required whenever any commercial food establishment is connected to the plant or any activity which produces grease content over and above the normal grease content found in domestic wastewater. Grease interceptors shall be required as an addition

to a wastewater treatment plant if it is determined from the analysis of the wastewater influent or effluent that elevated grease levels prevail.

11. Monitoring by a certified wastewater treatment plant operator with laboratory analysis by a State Certified Laboratory is required in accordance with the Regional Water Quality Control Board Monitoring Program and County monitoring requirements, if established. Analysis required may include biochemical oxygen demand, dissolved oxygen and settle able solids of plant influent and effluent and at such other points on stream as may be necessary. Average daily and peak flows after the plant is in operation are to be determined by a reliable method. Copies of these analyses and operational records shall be furnished to the Department and to the Regional Water Quality Control Board - Central Valley Region.

12. An auxiliary electrical power supply shall be available for the continued operation of the package wastewater treatment plant. Portable power supply shall comply if it is available within a reasonable period of time in the event of a failure.

Emergency standby generators exceeding fifty (50) brake horsepower (bhp) shall be permitted by the Local Air Pollution Control District.

13. All new package wastewater treatment plants shall be owned and operated by an existing Public Agency with expertise in the field of wastewater management. Creation of a new Public Agency may also serve to meet this requirement.

J. Proposals for Experimental Systems

1. Nothing in these regulations shall be construed to prohibit applicants from submitting proposals for experimental OWTS's for new systems on existing legal lots or for repairs of existing systems. An experimental OWTS design shall not be considered for creation of new lots.

2. All proposals for experimental systems shall be submitted by a qualified professional and shall have sufficient technical documentation for both the system and the site to support the application.

3. The Department may require submission of any such additional information as deemed necessary to properly evaluate the merits of the proposal and the risks of potential threats to public health or water quality.

4. Systems which require operation of significant mechanical equipment may be reviewed under the Package Wastewater Treatment Plants section of these regulations.

5. The Department may limit the number of particular types of experimental systems until sufficient operational history is available within the County to demonstrate system reliability.

6. A Notice of Engineered Wastewater Treatment System shall be recorded to ensure system information is transferred with title on change of ownership.

7. The Department may establish a monitoring program to be implemented by the owner to document system performance. Monitoring data shall be submitted to the Department according to an adopted schedule.

K. Subsurface Drip Disposal/Drip Systems

1. Subsurface Drip Dispersal is an OWTS that is considered experimental which includes an approved Advanced Treatment System followed by the disposal of wastewater through subsurface drip irrigation. Wastewater shall be uniformly dispersed into driplines having a minimum of 8 inches of soil cover.

2. To be considered suitable for a Subsurface Drip Dispersal system, the site must have the following characteristics:

- a. A well drained, stable, moderately concave or convex slope.
- b. A slope of fifty-five (55) percent or less.
- c. Able to comply with all setback requirements.
- d. A percolation rate less than 240 mpi conducted at a depth of 12 and 18 inches below the ground surface.

3. Vertical separation requirements are as follows:

<u>Depth below trench bottom to</u>			
<u>Lot size</u>	<u>Restrictive Layer</u>	<u>Temporary Water</u>	<u>Permanent Water</u>
Less than 2 ac...	12"	24"	36"
2 acres and larger...	6"	24"	36"

4. Disposal field sizing criteria

<u>Percolation Rate</u> (mpi)	<u>Design Application Rate</u> (gpd/sq. ft.)
	1.0
21-30	0.7
31-45	0.6
46-60	0.4
61-90	0.2
91-120	0.1
121-240	0.075

L. Easements

1. An easement or deed restriction shall be recorded whenever onsite wastewater system components cross property lines or lie wholly or in part on a parcel of land different than the parcel upon which the wastewater originates.

CHAPTER 7, - WASTE DISCHARGE REQUIREMENTS

A. Residential Units

1. For residential OWTS units, total average daily flows greater than twenty-five hundred (2,500) gallons per day; complete engineered plans for the OWTS shall be submitted by a qualified professional to the Department. Filing of a Report of Waste Discharge with the Regional Water Quality Control Board – Central Valley Region may be required at the discretion of the Department and while directed by the Department is the sole responsibility of the applicant.

B. Commercial / Industrial Units

1. All proposed commercial and industrial OWTS designs shall be engineered with plans submitted by a qualified professional to the Department. The design shall consider the waste constituents anticipated from the commercial use and provide grease traps or other pretreatment as may be required for the particular waste. Filing of a Report of Waste Discharge with the Regional Water Quality Control Board – Central Valley Region may be required at the discretion of the Department and while directed by the Department is the sole responsibility of the applicant.